

# **The American Journal of Pharmaceutical .... Education ....**

## **The Program Number**

**The Fifty-sixth Annual Meeting will be held in  
Miami Beach, Florida on May 1-3, 1955**

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**THE OFFICIAL PUBLICATION OF THE AMERICAN  
ASSOCIATION OF COLLEGES OF PHARMACY**

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"Resolved, that the American Pharmaceutical Association commend the American Association of Colleges of Pharmacy and the National Association of Boards of Pharmacy for their constructive efforts toward the advancement of the educational program for future pharmacists, and offers its assistance and cooperation in the advancement of this goal."—Secretary R. P. Fischelis, of the APhA was directed to send Secretary R. A. Deno, of the AACP a copy of this resolution which was passed by the House of Delegates at the Boston meeting and transmitted with the additional commendation of the Council of the APhA on the splendid work being done by the AACP.

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**Volume 19**

**Winter, 1955**

**Number 1**

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# INSTITUTIONS HOLDING MEMBERSHIP IN THE AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY

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Dean L. S. Blake  
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Birmingham 6  
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University of Arkansas (1903)  
Tucson 11  
Dean Willis R. Brewer

## Arkansas

School of Pharmacy  
University of Arkansas (1903)  
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Little Rock  
Dean Stanley G. Mittelstaedt

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University of California (1948)  
The Medical Center  
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Dean T. C. Daniels  
School of Pharmacy  
University of Southern California (1912)  
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Dean Alvah G. Hall

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2125 H Street Northwest  
Washington 6  
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800 W. Street Northwest  
Washington 1  
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Florida Agricultural and Mechanical  
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(Acting) Dean Matthew T. Waters  
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(1848)  
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Loyola University (1931)  
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School of Pharmacy  
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\*Denotes year institution was admitted to the Association.



# THE AMERICAN JOURNAL OF PHARMACEUTICAL EDUCATION

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## **Pharmaceutical Education, the Foundation of the Drug Industry in All Its Parts, and the Pharmaceutical Profession in All Its Phases: Let's Understand It and Use It\***

**ROBERT L. SWAIN**

**President, American Foundation for Pharmaceutical Education**

One of the odd twists of human nature is that which be-  
guiles one into taking for granted so many constructive and  
helpful things. What, by way of illustration, does the average  
citizen know basically about the make-up and services of the  
health department which, as a matter of fact, safeguards his  
food, drinking water, sanitary conditions of his environment,  
and the many other services essential to the maintenance of  
good health?

The same observation might be made with respect to  
insurance, police protection, fire and water departments, and  
other factors utterly essential to our personal physical  
safety. We have come to take for granted such factors in  
our daily affairs without which community life, as we now  
know it, would be an uncertain and hazardous thing.

But, taking things for granted develops a lack of under-  
standing, an ignorance of value, and deprives us of the facts  
which would enable us to appreciate things all the more and  
put them to more constructive, effective use.

While going through the writings of an ancient phil-  
osopher a few nights ago, I ran into this crystal of 24 carat  
wisdom which, I think, has application here. The old phil-  
osopher said, "I was very sad because I had no shoes until I  
saw a man who had no feet." While many lessons can be

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\*Read before the Federal Wholesale Druggists' Association Meeting, The Green-  
brier, White Sulphur Springs, West Virginia, September 21, 1954.



learned from this homely observation from the past, I think it virtually commands us to understand our resources, to evaluate our assets, so that we can make the best possible use of them. It seems to suggest, also, that when one has a full grasp of his assets and resources, he may find that his possessions are quite adequate for his needs, and that there is no point in his being too envious of others.

Now, with these thoughts in mind, let's consider the subject of pharmaceutical education as it bears upon all segments of the drug industry—the manufacturer, the wholesaler, and the retailer. It can be said that, just as education is the foundation of the state, so is it the foundation of every industry, every profession, and every segment of our political, social, and economic life.

It is, therefore, the foundation of the drug industry in all its parts, and the pharmaceutical profession in all its phases. Our system of pharmaceutical education underlies and gives support to all pharmaceutical activities. And yet, in spite of the fact that our system of pharmaceutical education must be regarded as the bedrock asset of the drug industry and the pharmaceutical profession, there is much to indicate that it is not nearly as well understood as it should be, and is by no means used as fully and as effectively as circumstances demand.

The pharmaceutical profession is, by every test, a public health profession, and depends upon a progressive educational system to assure its proper place in the ever expanding field of health care.

Without attempting to explore or evaluate pharmacy's place in the "era ahead" it can be safely predicted that the pharmacist will become more and more the pharmaceutical consultant to the medical profession and that his educational preparation must be geared to this exacting professional function.

The pharmacist will become more and more the pharmaceutical adviser to the public, simply because the drug products of the future will require the advice and counsel of the pharmacist to a much greater extent than ever before.

The drug industry, because of its scientific and technical make-up, and the highly specialized functions it performs in the social scheme, is basically dependent upon education in general, and pharmaceutical education in particular. Indeed, it would be difficult to think of an industry more closely concerned with scientific, technical, and professional education than our own.

One merely needs to keep in mind that the drug industry is a ranking public health asset to realize that it must be, of necessity, educationally-minded in order to well meet the obligations and discharge the responsibilities imposed upon it.

Insulin, antibiotics, and other life saving drugs would be a little more than scientific wonders, were it not for the drug industry which produces them of highest quality, and a price within the reach of all. The highly characteristic and significant fact that the industry is so completely grounded upon scientific research goes to show in bold relief the fundamental relationship of the industry to pharmaceutical education.

It is, as Dr. Judd so well said, "a miracle industry" and it is destined to become still more so as medical and pharmaceutical science rise to still higher reaches of achievement.

There is much to indicate that polio, cancer, mental disease, tuberculosis, and other ancient scourges of mankind are coming closer and closer to medical control. Some morning, the world will thrill to the announcement that the men in white have discovered cures for the ancient maladies and, unless the signs fail, it will be drugs, chemicals, and their combinations which will bring these happy developments to pass.

As the public becomes more intelligently health-conscious, it will tend to rely upon the industry and the profession for professional guidance in those health matters inherent in the industry as the producer, and the drug store as the distributor of drugs, medicines, and related supplies.

From any and every viewpoint, pharmaceutical education seems certain to loom more largely upon the industry and the profession in the near and distant futures.

Specifically, the college of pharmacy, as an emblem of our educational needs, hopes, and aspirations, takes on a new and deeper significance as we ponder the road ahead.

Just to bring this truth out in bold relief, let me ask of this audience how many manufacturers, wholesalers, and retailers have visited a college of pharmacy within the last one to five years? Indeed, how many of you have ever visited a college of pharmacy at all? If a showing of hands would indicate a lack of personal contact with colleges of pharmacy upon the part of this representative pharmaceutical body, it would seem also to indicate a lack of knowledge of our pharmaceutical educators who play an utterly vital role in the progress, stability, and basic welfare of every phase of pharmaceutical endeavor.

It has long been my conviction that pharmaceutical education, as exemplified by our colleges of pharmacy, and the distinguished men and women who make up the professorial personnel, would be more alert, more alive, and more useful if the over-all drug industry enjoyed a close, factual knowledge of it, and maintained purposeful working relations with it.

Such a situation would stimulate mutual understanding, a keener evaluation of mutual values, and certainly result in more effective use of our educational system. Now, by way of necessary detail, let me mention some of the professional, technical, and economic subjects which make up the curriculum of the average college of pharmacy. I shall mention only the required subjects: chemistry in all its branches, such as general inorganic, organic, together with physical and biochemistry; theoretical and practical pharmacy, including such widely used drugs as pharmaceutical specialties, bacteriology, pharmaceutical testing and assaying; pharmacology, including the pharmacology of the more important pharmaceutical specialties, pharmacognosy, pharmaceutical jurisprudence, pharmacy administration, fundamentals of economics, not to mention other technical, professional, and cultural subjects essential to a well-rounded curriculum of professional training.

A mere reference to the curricular content of the college of pharmacy course shows that it has direct and essential application to many areas of pharmaceutical endeavor. While the great majority of the graduates of our colleges of pharmacy go into retail pharmacy, an increasing number annually is entering hospital pharmacy.

Many also find employment in the manufacturing drug industry, and many serve the industry as salesmen, detail men, and as other specialists. Colleges of pharmacy also prepare men and women for governmental careers, service in the armed forces, and for work in research institutions, as well as in other fields concerned with the drug and medical phases of health care.

Many wholesale druggists, it is interesting to note, have pharmacists on their staff so that they may provide prompt, accurate, and essential information to their retail customers with respect to the many factual demands which come to them regarding the newer drugs and medicines as they come along.

One merely needs to refer to the retail drug store as the heavy duty outlet of the drug industry to spotlight the indispensable services which the pharmacist renders. The retail drug store is that point in our economic system where the products of the industry come to the point of retail sale, and it is through the hands of retail pharmacists, who have been trained by our colleges of pharmacy, that these products reach the consumer.

It will therefore be seen that pharmaceutical education, through the many services performed by its graduates, makes a continuing contribution to the professional, economic, business, and distributional phases of the drug industry in its entirety. Through its well-designed courses of instruction, pharmaceutical education has made it possible successfully to blend professional services with distributional efficiency, as it devotes itself to teaching those principles, concepts, and techniques essential to both.

Retail drug distribution today is economically strong because it is professionally strong, and it is professionally strong because it is economically strong—a formula which is

more and more to the forefront in the thinking and planning of our pharmaceutical educators.

With this brief but, I hope, pointed comment with respect to the drug industry's over-all stake in pharmaceutical education, let me comment briefly upon the American Foundation for Pharmaceutical Education, of which agency I am now privileged to serve as president.

The Foundation, too, is not nearly as well understood nor as fully used as it should be. I mention this not in the way of criticism, but merely to emphasize that an instrumentality has been provided for serving pharmaceutical education in such a way as to make it of the very greatest value to the drug industry as a whole.

The Foundation was conceived in and created by the National Drug Trade Conference, a body made up of the representatives of every national drug and pharmaceutical organization. The Foundation must, therefore, be seen as an instrumentality designed and devised by the drug industry for serving the basic needs of pharmaceutical education, and thus contributing to the basic needs of the industry itself.

The Foundation maintains undergraduate scholarships in practically every college of pharmacy. Graduate fellowships are maintained in many of the universities which have colleges of pharmacy, and these enable men and women to pursue their graduate training up through the doctor of philosophy level.

Indeed, the graduate fellowship phase of the Foundation's activities may be regarded as the most fundamental. Through these graduate fellowships, men and women are expertly prepared for teaching, manufacturing, and more and more of them are finding their place in the research laboratories of the drug industry.

The Foundation is also active in the procurement of pharmacy students, and in stimulating greater interest in pharmacy among high school vocational guidance directors, as these can play a vital role in building up enrollment in our colleges of pharmacy.



The Foundation, also, through its contributions to the American Council on Pharmaceutical Education, makes it possible for that agency progressively to raise the standards of pharmaceutical education, strengthen teaching personnel, and increase teaching facilities as part of its general accreditation program.

The Foundation has been most valuable, as it can be truthfully stated that, as a result of it, every college of pharmacy in America is a better institution in all that the term implies.

The Foundation sponsors and finances teaching seminars which have been invaluable in developing greater interest and greater efficiency among our pharmaceutical educators. It is worthy of note that recently, one of these seminars was devoted entirely to the teaching of pharmacy administration, the academic designation which embraces pharmaceutical economics, advertising, marketing, and other subjects which underlie modern business methods, and prepare the student for meeting the problems, demands, and opportunities of competition throughout the consumer field.

The Foundation also makes a substantial annual contribution to *The American Journal of Pharmaceutical Education*, which plays so vital a part in maintaining a practical, progressive outlook throughout our educational field.

It is my hope that what has been said here with respect to the aims, purposes, and objectives of the Foundation, and our system of pharmaceutical education, will stimulate a desire to understand it more fully and to use it more effectively.

There can be no doubt that the more the drug industry cooperates with our colleges of pharmacy, our educators, and becomes more familiar with the courses of instruction and their application to all pharmaceutical interests, the greater will be our appreciation of what pharmaceutical education means, and the more practical our knowledge of how to put it to greater use.

A promise set forth in the Book of Proverbs, that repository of the wisdom of the ages, would seem particularly

appropriate here: "He that tendeth the fig tree shall eat of the fruit thereof" which, applying it to our discussion here, means that those who cooperate with our colleges of pharmacy so that a spirit of mutual helpfulness may be developed, is sure to share in its benefits and profits from its usefulness.

I am particularly impressed with the need of the drug industry and pharmacy in general to familiarize themselves with the make-up and capacities of our system of pharmaceutical education, because the professional and economic problems now confronting the industry and the drug store are such as to make our educational system all the more significant.

No one can dispute the assertion that the over-all pattern of distribution is undergoing revolutionary and fundamental change. Indeed, there are those students of the situation who contend that the changes now apparent are but a preview of still more far-reaching changes to come. Be that as it may, we do know that the distribution of drugs and medicines, and other pharmaceutical supplies, has now reached the super market, the variety store, the discount house, vending machines, mail order houses, food and dairy establishments.

On the professional side, the pharmacist is concerned with the dispensing doctor, the physicians' supply house, the physicians' clinic pharmacies, the surgical dealers, and other intrusions upon his professional domain. The mere mention of the professional and economic problems facing the pharmacist demands that he be trained and educated in those approaches and techniques which underlie good public relations.

In the aggregate, these forms of competition pose problems of the utmost magnitude for the manufacturer, the wholesaler, and the retailer. They emphasize, more than ever before, the utter necessity of having pharmacists well-trained and well-fitted for the competitive pressures which, unless all signs fail, will become still more intense.

This is another way of saying that our colleges of pharmacy must be geared to this new competitive outlook on both the economic and professional sides of the drug store. To accomplish this, for the benefit of the drug industry, the pharmaceutical profession and all concerned in any way with pharmaceutical service, must be adequately informed with respect to the structure of our system of pharmaceutical education, the attitudes of our educators, so that through their combined efforts, the pharmacists of the future will be sufficiently well educated, sufficiently well rounded, and sufficiently competent to cope with the problems and be equal to the opportunities which go hand in hand with pharmacy, both as a profession and the distributional center for the drug industry.

Now, by way of conclusion and summary, let me urge that as we contemplate the basic objectives and character of pharmaceutical education, we need to keep two fundamental concepts in mind.

The first: The future belongs to those who prepare for it, and who are fitted to cope with the problems which are inevitable as we move into the world ahead; who are qualified and ready to face up to whatever may confront them in a thoughtful and purposeful way.

While change is the only permanent force in the affairs of mankind, changes, as they unfold, retain much of the fundamental and adhere more or less sharply to the basic varieties of the past. Were this not true, Patrick Henry would be denied immortality, and there would be no continuity between the past, the present, and the future. But, the mere fact the world has held together, that people of one age have benefited from the progress and errors of a previous age, and that, over-all, the level of the assets and resources of all people is constantly moving up, proves that without the past there would be no future, as we visualize and understand the term.

The second: "Coming events cast their shadows before." Thus, we can rest assured that the future of pharmacy, however drastic the changes which may occur, will be closely

like the present insofar as it will bring issues, controversies, problems, pressures, and challenges which go hand in hand with every competitive enterprise.

Indeed, the nature of the future of pharmacy and the drug industry can be seen in the revolutionary changes taking place in all phases of distribution and in an understanding of the impact of these changes upon every segment of our economic, social, and professional life.

The future, also, will be rich in opportunities—opportunities for economic growth and stability, and opportunities for pharmacists to serve in the upper reaches of professional achievement. The problems, together with the opportunities, are what makes the future of pharmacy and the drug industry so challenging and so appealing.

But, it will be only those who have partaken generously of what pharmaceutical education has to offer; who have sought to understand our educational system, and have learned to cooperate closely with our educational institutions who can hope to be equal to any and all developments which the future may bring.

Again—the future belongs only to those who are prepared for it. So, let us really understand our educational system and use it as intelligently and purposefully as we possibly can.

We have it on the authority of Holy Writ, "He that tendeth the fig tree shall eat of the fruit thereof."

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## New in the Family

**Ronald Kerry Endo.**—Born October 18, 1954, son of Mr. and Mrs. B. Endo, grandson of Mrs. Cisco Kihara, Idaho State College.

**Paul Stewart Miller.**—Born November 2, 1954, son of Dr. and Mrs. Orville Miller, University of Southern California.

**Kathleen Hamor.**—Born November 2, 1954, daughter of Dr. and Mrs. Glenn Hamor, University of Southern California.

**Christopher Charles Webber.**—Born September 19, 1954, son of Dr. and Mrs. M. G. Webber, University of Houston.

**Robin Jean Pratt.**—Born November 2, 1954, daughter of Dr. and Mrs. Robertson Pratt, University of California.

**Diantha Peck Cooley McCarthy.**—Born October 29, 1954, daughter of Dr. and Mrs. Walter C. McCarthy, University of Washington.

## Tools For Pharmacy College Librarianship\*

M. MARGARET KEHL

Associate Professor, School of Library Science  
Drexel Institute of Technology

There are comparatively few published articles on the operation of the library in a college of pharmacy. Often these libraries have small staffs and volunteer student aides. The librarian has neither the time nor the secretarial help for such writing. Often, too, material has been presented at professional meetings which fails to reach the printed page. Specific articles on individual libraries are badly needed.

Because of this paucity one is forced to draw upon the literature relating to administration of general college and university libraries, upon the publications on medical school libraries and upon the more prolific writing of pharmaceutical company librarians. Since one of the outstanding characteristics of the special librarian is adaptability, data from the selected list presented here can easily be used to fit situations in a pharmacy school library.

The year 1942 has been designated as a starting point because the *Handbook of Medical Library Practice* covered the bibliography to that point rather adequately. It seemed wise, however, also to include certain articles printed before that year which have proved their worth. Any selected list will be found to have some deficiencies. This one has had the wise viewing of several librarians and thus should incorporate variety of thought.

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\*The Committee on Libraries of the American Association of Colleges of Pharmacy was reorganized in the summer of 1953 to include in its membership representatives from the Pharmacy Group of the Medical Library Association and from the Pharmaceutical Section of the Science-Technology Division of the Special Libraries Association. At a meeting in November, 1953, of this Joint Committee on Pharmacy College Libraries, the need for a bibliography on tools for librarians in pharmacy colleges was recognized. M. Margaret Kehl was requested to draw up a preliminary annotated list. The members of the Committee: Charlotte Coffman, Schools of Dentistry and Pharmacy, Temple University and Clara A. Robeson, Sheppard Library, Massachusetts College of Pharmacy, (Medical Library Association); Irene M. Strieby, Lilly Research Laboratories, Eli Lilly and Company and Winifred Sewell, Squibb Institute for Medical Research (Special Libraries Association); and Glenn Sonnedecker, School of Pharmacy, University of Wisconsin and the former Committee Chairman, (American Association of Colleges of Pharmacy), then helped to revise the list.—R. A. Deno, 1953-1954 Chairman, Joint Committee on Pharmacy College Libraries



The most important limitation of the bibliography is the omission of unpublished papers prepared for library science degrees. There is no complete list of these. The several known to the compiler, however, such as "Student's Guide to the Literature of Pharmacy," by Clara A. Robeson; that done by Elizabeth W. Johnson on "A Proposed Course for Teaching the Use of the Library at the Philadelphia College of Pharmacy & Science," and another by Robert T. Lentz, "Survey of Therapeutics Literature Files and Plans for the Development of a File for the Jefferson Medical College," show that the availability of these and other unpublished convention papers would greatly enhance the value of any list comparable to the one presented here.

A rich mine for bibliographical items is to be found in the commercial brochures and house magazines of the pharmaceutical companies. The trade journals of the drug and cosmetic manufacturers are equally informative. Few have been cited because they are not generally located in one place such as the public library. Suggestions for selection and titles will be found in Sections F and G.

Another omission is the excellent bibliography prepared under the direction of the committee chairman, Edith Joannes, by the Illinois Chapter of the Science-Technology Group, Special Libraries Association, in 1947. It was consulted, especially Section 13, *Pharmacy*, and references from it are included. It is not cited in this list because of its card format, which does not make it easily available for borrowing. It may be consulted in many technical libraries.

There is no substitute for the periodic perusal of the library journals from which this bibliography has been selected. The interested librarian will also glance through the subject matter periodicals as they appear. Through these media the progress of both the library and its users may be followed. Since any published list of readings is soon out of date this thought needs stressing.

Finally it is hoped that the selected list will prove helpful to the new librarian, as well as present new ideas to the more experienced one; that it may increase understanding

of the library's place in a college of pharmacy; and that it may spur the pharmacy college librarian to write more about the individual scene he or she knows best.

### Selected Bibliography 1942-1954

#### Section A Of General Interest

In this category are the texts on college and university libraries, the articles which apply to any library, and material which combines information and titles on many or on all phases of library administration and operation. For additional references on a specific problem consult the subheadings below.

1. Bemis, Dorothy. College and university library administration. *Spec. Lib.* 43: 244-245, Sept. 1952.

Basic thoughts on planning, organization, direction, staffing, coordination, reporting and budgets.

2. Bird, J., and Ditmas, E.M.R. Signposts. *ASLIB Proc.* 5: 27-39, Feb. 1953.

Brings Ditmas' bibliography (this section, 4) up to date.

3. Davis, L. F. Instructions for a medical school planning survey. *Bull. Med. Lib. Assn.* 41: 273-276, July, 1953, 8 refs.

How to survey a given situation. Bibliography cites published examples.

4. Ditmas, E.M.R. Literature of special librarianship. *ASLIB Proc.* 2: 217-243, Nov. 1950.

Three hundred references on all phases of this subject and covering all kinds of libraries. See Bird and Ditmas (this Section, 2) for continuation of this bibliography.

5. Hausdorfer, Walter. *Professional school and departmental libraries*; sponsored by University and college departmental libraries group. N.Y., SLA, 1939, rep. and prep. in *Special Libraries* 30: 75-81; 116-120; 150-156; 191-195, Mar., Apr., May-Je., July-Aug., 1939. 24 p.

Physical aspects, staff, budgets, acquisition and processing, services and publicity. Budget and financial figures need adjustment, since based on a 1936-37 survey.

6. Kientzle, Elizabeth. The college librarian and the library committee. *Lib. Q.* 21: 120-126, Apr. 1951.

Study of 89 midwestern colleges, each with a book collection of at least 50,000 volumes. "Library committees serve primarily in an advisory capacity . . ." and ". . . are unnecessary in small colleges . . ."

7. Lee, C. O. The report of the Committee on Libraries. *Am. J. Pharm. Educ.* 3: 538-545, Oct. 1939; and 4: 469-470, July, 1940.

The Joannes' bibliography says this: "Recommendations for improvement and standardization of pharmacy school libraries with trained librarian in charge. Evaluation of pharmaceutical periodicals and books." Later reports of this committee will be found in the Baer article (Section G, 1).

8. *Library Guide, Jefferson Medical College.* (1951?) 10 p. mimeo.

Many of these guides are issued to readers. By writing to colleges with similar problems for such handbooks, much information on operation may be obtained.

9. Lyle, Guy R. *The administration of the college library.* 2d rev. ed. N.Y., Wilson, 1949. 608 p.

While not slanted to the college of pharmacy, has general application. Chapter XII on "Selection and acquisition of special types of material" includes selection of medical periodicals.

10. McCarthy, Stephen A. Advisory committee or administrative board? *Lib. Q.* 22: 223-231, July, 1952.

How to work successfully with a committee or board to mutual advantage.

11. Medical Library Association. *A handbook of medical library practice.* Chicago, A.L.A., 1943. 609 p.

Edited by Janet Doe, and now being revised, the most complete guide to the literature of the medical and allied sciences, as well as a history of library development. Invaluable for administration and techniques.

12. Randall, William M., and Goodrich, Francis L. D. *Principles of college library administration.* 2d ed. Chicago, A.L.A. and Univ. of Chicago Press, 1941. 249 p.

This text, like Lyle, (this Section, 9), applies to any college library. Both include sections on personnel, finance, quarters, and service.

13. Report of Committee on Criteria for Medical School Libraries; survey of the libraries in the medical schools of the United States and Canada; preliminary tabulation of replies, June 7, 1952. *Bull. Med. Lib. Asn.* 41: 12-23, Jan. 1953.

This digest by Clara Manson is useful for status of staff; organization of the library; its holdings, budget, physical facilities and basic periodicals.

14. Southern, W. A. The industrial pharmaceutical library. *Drug and Cosmetic Industry* 71: 182-183, 265-267, August, 1952.

Article suggested by a committee member, not examined by the compiler, but an example of the value of scanning the trade journals.

15. Southern, W. A. Pharmaceutical libraries. *Spec. Lib.* 41: 350-351, 360 and 370, Dec. 1950.

Survey of the company libraries shows seventeen kinds of potential service and twenty-one suggested areas which might be covered cooperatively (as *Unlisted Drugs*).

16. Special Libraries Association, Science-Technology Division; Lucille Jackson, Editor. *Technical libraries; their organization and management*. N.Y., SLA, 1951. 202 p.

The efficiency and speed of the company library may well be adapted to the college library. Bibliographies in the *Appendix* include pharmacy and related sciences. This work is as basic as the *Handbook of Medical Library Practice*. Chapters consider each subject grouping below.

17. Special Libraries Association, Science-Technology Division, *Pharmaceutical Section Issue of Special Libraries* for February, 1954.

Most of this number is on the company library. Includes problems of issuing an abstract bulletin, organizing files for information and description of the Lloyd Library.

18. Symposium on Pharmaceutical and Medical Literature, Sept. 1953. 15 papers. (In *Am. Chem. Soc. Abstracts of Meeting Papers*, not as yet printed complete in any one source.)

19. Wilson, Louis Round, and Tauber, Maurice F. *The university library*. Chicago, Univ. of Chicago Press, 1945. 570 p. Considers all phases of organization and administration.

## Section B

### Staff and Professional Standards

"The librarian does not have to have an M.D.—only a friend and an ally with one," says Ingersoll (Section E., 4). Discussion of whether the L.S. degree alone is adequate requisite for the pharmacy college librarian, or further training and experience is indicated will be found in this section. Professional preparation, the philosophy of the profession, duties and salaries of the library staff and job descriptions are considered. Additional references in *Technical Libraries*, Chapter II, as well as in the texts cited, can be consulted.

1. Boots, Rose. Preparation of a staff manual. *Spec. Lib.* 43: 265-267, Sept. 1952.  
Gives complete outline of items for such a manual, in addition to the method of gathering necessary details.
2. College and University Library Statistics. *Coll. & Res. Libs.* 15: 66-83, Jan. 1954.  
Includes salary figures as well as budget items, which compared with student enrollment and other ratio may be used in any given situation. Usually these tables are available annually and divided to fit four different groups.
3. Deno, R. A. Report of the Joint Committee on Pharmacy College Libraries, 1953-1954. *Am. J. Pharm. Educ.* 18: 646-649, Oct. 1954.  
The appendix to this report consists of a resumé of a questionnaire study of pharmacy college libraries. This was made in the fall of 1953 under joint sponsorship of the A.C.P.E. and the A.A.C.P. The resumé was prepared by Melvin W. Green, Director of Educational Relations of the Council. It gives the most recent and most specific data available on pharmacy college libraries. Headings are: 1. Quarters; 2. Equipment; 3. Holdings; 4. Records and Procedures; 5. Personnel; 6. Policy; 7. Services.
4. Disbrow, Mary E. Impressions of the course in medical libraries at Emory University. *Bull. Med. Lib. Asn.* 41: 277-282, July 1953.  
Five week summer course in medical library resources and their use in medical education is highlighted by a student.
5. Herner, Saul and Heatwole, M. K. *Establishment of staff requirements in a small research library.* Chicago, ACRL Monograph #3, May, 1952. 16 p. 16 refs.  
Time and work study, showing how duties are divided among staff, necessary tasks for each and professional requirements.
6. Holland, Madeline O. Widening horizons. *SLA Transactions of the 41st Annual Convention*, June 12-16, 1950, pp. 141-142.  
Paper presented at the Pharmaceutical Section of the Science-Technology Group on the opportunity and challenge of working in this field.
7. Johnson, Elizabeth W. Student help in a small college of pharmacy library. *Spec. Lib.* 42: 97-98, 108, March, 1951.  
Four students work forty-five hours a week at the Philadelphia College of Pharmacy and Science, providing the only assistance for the librarian.



8. Lage, Louise C. A program for library staff development. *Bull. Med. Lib. Asn.* 40: 37-42, Jan. 1952.  
Written for the large library but attendance at library conventions, visits to other libraries, keeping up with the professional literature of the librarian, and the subject field, apply to all.
9. Marshall, Mary Louise. Medical librarianship. (In "Education for special librarianship" article) *Lib. Q.* 24: 13-15, Jan. 1954.  
Guide for preparation in the field of medicine, easily translated into needs of the pharmacy college librarian.
10. Mohrhardt, Foster. Medical library training courses conducted by the Veterans Administration. *Bull. Med. Lib. Asn.* 39: 177-181, July, 1951.  
Preparation for work in the V.A. hospital libraries entails intensive three week course in medical bibliography and allied subjects.
11. Prime, L. Marguerite. Medical Library Association; aims, activities and a brief history. *Bull. Med. Lib. Asn.* 40: 30-36, Jan. 1952.
12. Strout, Donald E. The placement picture. *Lib. J.* 78: 952-955, June 1, 1953.
13. Survey on Salary Standards in Libraries of the Medical Sciences, 1952 revisions; Medical Library Association Placement Service, Subcommittee of the Survey. *Bull. Med. Lib. Asn.* 40: 447-461, Oct. 1952.

Pharmacy college libraries are covered on page 456.

### Section C Finance

The article by Marcella Glasgow on "The budget in the medical school library," in the *Bulletin of the Medical Library Association*, volume 41, page 252-257, July, 1953 includes thirteen references, and is most useful because it discusses thirteen considerations for preparing a budget, with the necessary records and shows how to arrive at a total. Since it is obviously difficult to find a fiscal pattern which will apply to all pharmacy college libraries, texts like Randall and Goodrich (Section A, 12), and Chapter III of *Technical Libraries* (Section A, 16), suggest methods of procedure. Costs and salary percentages in older books like the *Handbook of Medical Library Practice* (Section A, 11) are subject to revision. "College and University Library Statistics" (Section B, 2) will be useful for specific expenditures.

## Section D

### Physical Quarters and Equipment

In addition to articles listed here, see also references in Lyle (Section A, 9) and *Technical Libraries* (Section A, 16). Especially valuable in the latter are names of dealers for supplies and equipment. The *Library Journal* and the *A.L.A. Bulletin* have sections on new gadgets, furniture, stacks and layouts.

1. *Bibliography in an Age of Science*. Urbana, Univ. of Illinois Press, 1951. 90 p. illus.

The second annual Windsor Lectures, 1950 by L. N. Ridenour, R. R. Shaw and A. G. Hill are on problems of selection from the vast amount of published literature, storage, indexing, machine methods and other devices of communication.

2. Fry, Alderson, Plan and equipment of Health Sciences Library, University of Washington, Seattle. *Bull. Med. Lib. Asn.* 41: 24-31, Jan. 1953. 3 photos.

Many valuable suggestions on lighting and arrangement and on how the installation has worked out.

3. Illuminating Engineers Society, *Recommended practice of library lighting*. Reprint, *Illum. Eng.* 45: 185-197 March, 1950. 16 p.

4. Runge, Gretchen E., and Pyle, Helen Mary. *Library planning*; check list and reading list. Prepared for distribution at the S1A Convention, May 17, 1954. 18 p. mimeo.

Two of the five speakers on *Library Planning* at the Cincinnati meeting outline physical details and sources used for their talks. Publication of all of these talks is contemplated.

5. Sale, Robert C. *General considerations for the physical layout of a special library*. June 11, 1946. 5 p. mimeo.

Minimum space details and much practical information for the novice. Much of this talk is condensed in Chapter IV of *Technical Libraries* (Section A, 16).

6. Strieby, Irene M. Pharmaceutical library of the future. *Bull. Med. Lib. Asn.* 41: 399-404, Oct. 1953. 9 refs.

While predicting possible improvements, present techniques are evaluated.

7. "Symposium on Medical Library Architecture" was the heading for five talks given at the Washington convention of the Medical Library Association, June 17, 1954. To be published.

## Section E

### Service

The responsibility of the library to the faculty, students and administrator, and the matter of public relations is covered here. Dr. Ingersoll, (this Section, 4) believes that this is a two-way arrangement and urges cooperation from the faculty. Teaching the use of the library is important, particularly where the library staff is small. Reference service is treated more fully in Section F.

1. Draper, Wesley. Publicity for the medical society library. *Bull. Med. Lib. Asn.* 41: 53-57, Jan. 1953.

Orientation of new readers, use of the bulletin board, publishing of new book lists and good public relations are stressed.

2. Dunten, Bernice L. How to make the library function: teaching the use of the library. *Bull. Med. Lib. Asn.* 41: 410-413, Oct. 1953.

Suggests a minimum of two hours of classroom lecture and a semester of actual practice (3 hours a week) in the library for juniors or seniors. Describes several methods used for orientation.

3. Foregger, Richard. What the physician expects of the librarian. *Bull. Med. Lib. Asn.* 40: 283-287, July 1952.

Easy access to library material, physical comfort for such use, and training in the use of the library should be considered.

4. Ingersoll, C. F. Responsibility of the library to the faculty. *Bull. Med. Lib. Asn.* 40: 16-20, Jan. 1952.

The librarian should keep the faculty informed and write about the work done there. In turn the user should cooperate by returning material and helping the librarian with bibliographical problems beyond the knowledge of the librarian.

5. Johnson, Elizabeth W. A resumé of a proposed course for teaching the use of the library at the Philadelphia College of Pharmacy & Science. *Am. J. of Pharm. Educ.* 14: 606-612, Oct. 1950. 8 refs.

Condensed from an unpublished study for the M. S. in L.S. degree at Drexel and given at a meeting of the American Pharmaceutical Association.

6. Osborne, George E. Faculty and student use of the library. *Bull. Med. Lib. Asn.* 41: 405-409, Oct. 1953. 5 refs.

Refers to the excellent article by Alexander on "Techniques on library searching," (*Am. J. Pharm. Educ.* Apr. 1938). The who, what and wherefor of instruction

to students on using the library's resources. Advocates posting of the instructors' lists in advance. Suggests that the librarian keep the faculty informed on newer material.

7. Robeson, Clara A. Teaching bibliography to pharmacy students. *Bull. Med. Lib. Asn.* 40: 363-365, Oct. 1952.

The librarian of the Massachusetts College of Pharmacy reports on a formal course given for the first time at the college to freshmen students.

## Section F

### Methods of Procedure

Two situations confront the new librarian: an established library, which may need reorganization or weeding, or the need for a library where none has existed before. The Baer article (Section G, 1) is concerned with the selection of new matter and elimination of the obsolete and presents a "List of lists" which will help. Other ideas for selection and discard appear in this section. The location of out-of-print and foreign material is sometimes difficult as is the decision on the best indexes. After the books, pamphlets and periodicals are received, the best and quickest way of making them available is noted under Chapter VIII of *Technical Libraries*, (Section A, 16). Classification schemes are detailed in the *Handbook of Medical Library Practice*, Chapter V, (Section A, 11). Other problems involve storage, mechanical devices and files. Of even more importance is the ability to locate information quickly through efficient reference service.

1. Addinall, C. R. and Stecher, P. G. "Searching for medicinal chemical literature." (In *Searching the Chemical Literature*, Washington, D. C., Am. Chem. Soc., 1951. pp. 56-60).

Includes a list of drug compendia and fourteen references.

2. Barnard, Cyril C. The selection of periodicals for medical and scientific libraries. *Lib. Asn. Rec.* 5: 549-557, Nov. 1938. 17 refs.

Four tables show frequency of use of leading journals.

3. Brodman, Estelle. Choosing physiology journals. *Bull. Med. Lib. Asn.* 32: 479-483, Oct. 1944. 23 refs.

Another criteria for assembling a periodical collection based on a mathematical formula.

4. Clark, Mildred P. Getting the most from a smaller pharmaceutical library. *SLA Transactions* of the 41st Annual Convention, June 12-16, 1950, pp. 143-148.  
While intended for the company library, processing and reference procedure apply to pharmacy college libraries.
5. Fishbein, Morris. Recent developments in medical indexing. *Bull. Med. Lib. Asn.* 40: 116-121, Apr. 1952.  
Part of "Activities of the Committee on Indexes" report to the Association of Honorary Consultants to the Army Medical Library in 1951. Talks of foreign language services, *Q.C.I.M.*, and *Current List* and urges better form and more cooperation.
6. Horndler, G. Pharmaceutical libraries. *Med. Lib.* 33: 494-499, Oct. 1945.  
Describes techniques, sources of information, indexes of current literature, how to obtain foreign periodicals, classification and use of microfilm.
7. Howard-Jones, N. International medical documentation and the World Health Organization. *Bull. Med. Lib. Asn.* 41: 191-197, July, 1953. 9 refs.  
Definition of "documentation," the organization, and work of WHO and its library.
8. Labor-saving Devices and Techniques of the Future; I: Introduction. Use of the machine, by Mollie Sittner (with bib.); II: Notched cards, by Louise Darling; III: Book storage, by Suzanne C. Fallot; IV: Summary by Mrs. R. Jobe. *Bull. Med. Lib. Asn.* 41: 60-68, Jan. 1953.
9. Larkey, Sanford V. Some approaches to the problem of indexing. *Bull. Med. Lib. Asn.* 40: 107-121, Apr. 1952.  
Part of the same meeting cited in Fishbein's article (this Section, 5), this is important for its analysis of the coverage of the leading index and abstract services. The Research Project at the Welch Medical Library is also studying the direct and indirect method of indexing.
10. Maurice, Jewell. Development, criteria for selection and uses of house organs. *Bull. Med. Lib. Asn.* 40: 341-347, Oct. 1952.
11. *The Problem of Periodical Storage in Libraries.* Ann Arbor, Mich., University Microfilms, 1954. 20 p.  
Storage costs can be reduced by keeping older issues on film. Titles available and prices are given.

to students on using the library's resources. Advocates posting of the instructors' lists in advance. Suggests that the librarian keep the faculty informed on newer material.

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Definition of "documentation," the organization, and work of WHO and its library.
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9. Larkey, Sanford V. Some approaches to the problem of indexing. *Bull. Med. Lib. Asn.* 40: 107-121, Apr. 1952.  
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11. *The Problem of Periodical Storage in Libraries*. Ann Arbor, Mich., University Microfilms, 1954. 20 p.  
Storage costs can be reduced by keeping older issues on film. Titles available and prices are given.

12. Problems of Library Administration; general discussion directed by Elizabeth Runge. *Bull. Med. Lib. Asn.* 30: 429-432, Oct. 1942.

How many editions of a good text should be kept, how to take care of ephemera and how to fix prices for insurance.

13. Rogers, Frank B. Report from the Army Medical Library. *Bull. Med. Lib. Asn.* 39: 290-294, Oct. 1951.

Useful for subject heading selection.

14. Stauffer, Isabel. Let's look at the library. *Hosp. Pharmacist* 3: 287-308, Nov.-Dec. 1950.

Describes operation of pamphlet literature file, and lists subject headings. Three sample cards.

15. Strieby, Irene M. Reference files in a pharmaceutical library. *Med. Lib.* 35: 107-115, Apr. 1947.

Special indexes made by the library staff of Eli Lilly and Co. include abstracts, remedies, house organs, patents, reprints, trade catalogs, pictures and medical history.

16. Symposium in Abstracting and Indexing Services. *Chem. & Eng. News* 30: 2888-2890, July 14, 1952.

Abstract of papers given at the Division of Chemical Literature of A.C.S., 1951, on the extent of and gaps in these aids in the fields of medicine, medicinal chemistry and biology.

17. Taine, Seymour I. Subject heading authority list of the *Current List of Medical Literature*. *Bull. Med. Lib. Asn.* 41: 41-43, Jan. 1953.

Gives a better understanding of this valuable periodical service.

18. Troxel, Wilma. International medical documentation, present status and future prospects. *Bull. Med. Lib. Asn.* 40: 277-282, July, 1952. 16 refs.

Brings together a description of the efforts of the International Federation of Documentation, UNESCO and the M.L.A. Committee on Coordinated Abstracting Service for Clinical Medicine.

19. Vickery, B. C. Periodical sets; What should you buy? *ASLIB Proc.* 5: 69-74, May, 1953.

Selection may be gauged by how much is borrowed from the outside and possible use of magazine titles

for reference. A study of the journals included in the index and abstract services of the field will aid in determining which long runs are needed. Budget estimates for new libraries for periodicals, and studies of use by years.

20. Weeding the Medical Library. *Bull. Med. Lib. Asn.* 40: 162-169, Apr. 1952.

A symposium on the methods used for discarding by two medical school libraries, by date and by type of material.

21. Wilkerson, Mabel. Library purchasing practices. *Spec. Lib.* 42: 19-22, 38, 39, Jan. 1951.

Details for order and receipt records, how to choose a book dealer, find out-of-print books, obtain government publications and arrange for periodical subscriptions.

## Section G

### Resources

Because of the bibliography in the Baer article (this Section, 1), few additions are made here. The alert librarian must watch the field continuously and know the needs of the school rather than depend blindly on any one suggested buying list. In the medical field it has been said that many books are outdated within ten years.

1. Baer, Karl A. Bibliographic tools for selection of published materials in pharmacy. *Am. J. Pharm. Educ.* 18: 373-381, July, 1954.

Prepared at the request of the Joint Committee on Pharmacy College Libraries. Thirty-one sources for building a collection, and some words on the problems involved in selection.

2. Ellsworth, R. E. Evaluation of pharmacy journals. *Am. J. Pharm. Educ.* 4: 14-19, Jan. 1940.

Numeric rating of over 100 periodicals in chemistry, biology and medical periodicals by the educators.

3. Kenton, Charlotte. Reference tools for hospital libraries. *Bull. Med. Lib. Asn.* 40: 369-380, Oct. 1952.

After briefly reviewing a few of the 166 items in the "appendix", the author says: "The transitory state of medical bibliography, our rapidly expanding periodical

literature, the internationalizing influence of world organizations in developing world nomenclatures and standards, and the rise of comprehensive subject bibliography are trends which intensify the need to keep up with variations in the old reference tools and remain alert to the production of new tools."

4. Larkey, Sanford V. The Welch Medical Library indexing project. *Bull. Med. Lib. Asn.* 41: 32-40, Jan. 1953 and *Spec. Lib.* 44: 196-197, May-Je. 1953.

The first part is on the use of the machine and IBM punched cards and on how the subject heading is selected. The last half is on the analysis of the world's medical serials by this method for the Armed Forces Medical Library.

5. McCann, Anne. *Pharmaceutical codices and related useful reference tools*. 4 p. mimeo. Presented at the Annual Meeting of the Medical Libraries Association, June 15-18, 1954.

Six basic texts are minutely examined. One of the many important papers which may never be published, or often are not even printed for distribution at the meetings.

6. MacWatt, J. Alan and Stratton, Frances M. *Bibliography of house magazines of pharmaceutical concerns*. 5 p. mimeo. Presented at SLA, Science-Technology Division, Pharmaceutical Section meeting in May, 1952.

7. Robinson, Mrs. Arline. Separate dental school library. *Bull. Med. Lib. Asn.* 40: 26-29, Jan. 1952.

Lists important books and periodicals.

8. Sewell, Winifred. Librarian's use of *Unlisted Drugs*. *Bull. Med. Lib. Asn.* 40: 348-354, Oct. 1952.

Bibliography includes reference tools used.

9. Special Libraries Association, Science-Technology Division, Pharmaceutical Section. *Union list of periodicals in pharmaceutical libraries*. Published under the auspices of the Pharmaceutical Section, 1952. 189 p.

Holdings of twenty-five libraries in the United States and Canada, not in other union lists.

10. Usher, Robert J. Non-medical reference material useful to the medical reference librarian. *Bull. Med. Lib. Asn.* 30: 309-315, July, 1942.

Particularly useful for libraries which are widely separated from other book resources usually found in a large university. Titles include dictionaries, encyclopedic aids, handbooks and biographies.

## **The Advising of Graduate Students with Respect to Selection of Courses and Research Problems\***

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### **Selection of Graduate Student**

The research director in a graduate school really establishes the magnitude of his own duties with the selection of the graduate student. The first-class student not only requires a minimum of direction, but makes the inevitable job recommendations a pleasure. More important, he provides the essential building material for upgrading a profession. All will agree that this is the type of a graduate student that we want in Pharmacy; therefore, it may be of value to discuss briefly the current methods of selection of graduate students. As a rule, the dean of the graduate school makes the final decision of acceptance, but he always respects the opinions of the dean and research director under whom the graduate student intends to work. This information reaches the graduate dean in one way or another—what we are interested in *at the moment* is what system is used by the dean and research director to evaluate the student's application. At Purdue a graduate committee composed of a representative from each area of pharmacy attempts this evaluation with the dean exercising the final judgment as to how the graduate dean shall be advised. Obviously, no well defined system of evaluation is possible. We consider grades, but these can indicate, in a very general way, only certain capacities of the applicant. Good grades may suggest any of the following: (1) a fairly conscientious, superior student, (2) a hard working, average student, (3) a student with a better than average ability to memorize, etc. Then, there is always the question as to whether these grades are really good—after all, a grade is just one man's opinion as to the worth

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\*Read before the Section of Teachers of Graduate Instruction at the 1954 meeting in Boston.

of a student's performance, and these opinions are known to vary greatly from department to department and school to school. Recommendations, likewise, are not always reliable; many deans and professors feel that if the student is from their school they are duty bound to give a favorable recommendation. Of course, many recommendations are fair and just to all concerned, and are most helpful to any selection committee. At times, personal interviews are possible, but I frankly admit that first impressions can lead one very far afield. Detection of such qualities as a genuine interest in the welfare of the profession as a whole, and a willingness to serve for its advancement cannot be assured at the time of entrance into the graduate school. Probably, the most revealing procedure as far as the qualities of any man are concerned is to work with him for six months to a year. At the end of such a period a logical and just decision can be made. Some schools follow just such a system with their so-called "qualifying exams". The student is accepted on a temporary basis and is not officially a graduate student until he passes these qualifying examinations. Others do much the same thing by means of a re-evaluation of the student at the time the Master's Degree is granted. Thus, if the original decision of the committee on the graduate student is subject to some sort of a review by the faculty as whole at a later date such a procedure would appear to constitute a very fair system for the evaluation of a graduate student. One criticism of such a system is that the student might lose a semester or even a year of time, but this is very little when we appreciate that it is not unusual for ball-players to spend a life time trying to make the major league. Another deficiency is that the system is not automatic—it will work just as well or just as poorly as the individuals concerned wish to have it work.

### Curricular Problems

The first curricular responsibility of the research director is to examine the undergraduate record of the applicant for omissions of essential *foundation courses*. A good many of our pharmacy undergraduate curricula are set up on the



sole premise that a retail pharmacist is the end product. This is perfectly alright, but if such a graduate now becomes a candidate for the graduate school he must appreciate that many of the so-called retail courses have little value in research, and that possibly several untaken courses are essential in the graduate field. Other curricula recognize both retail and scientific pharmacy; they are compromises and, are claimed by some to over-educate for the average retail store and to under-educate for research activities. Hence, some deficiencies in foundation courses in this type of curriculum are to be expected. Finally, we could have a curriculum based on the premise that the scientific pharmacist is the final end product, and in such a case there should be no curricular shortages. As we operate today the research director should expect some curricular deficiencies in most instances. What are these deficiencies? One way to look at the situation would be to hold that all those undergraduate courses necessary for a good, sound foundation for research which are omitted from the student's undergraduate program constitute these so-called deficiencies. Since research in pharmacy involves the applications of the principles of the physical, chemical and biological sciences; then, the basic undergraduate courses in these areas should be considered to be essential to the research pharmacist, and if any of these are not included in the undergraduate curriculum a deficiency can be said to exist. Such deficiencies can be met by the inclusion of foundation courses in the graduate program or by self-study. With the curricula of some schools, the director of the graduate student is forced to design a program consisting of practically all foundation courses or to give a very heavy weighting to self-study or to compromise between these two extremes. In any event the full price for poor undergraduate planning is now to be paid in full. If it is not paid, Pharmacy is the loser—all she has to show for her efforts is a second-rate graduate product. It hardly seems necessary to mention specifically the basic undergraduate courses held to be essential to good research in Pharmacy. Who can deny the need for such courses as mathe-

matics through calculus, a strong foundation course in physics to be supplemented by an equally as strong physical chemistry course, and training in fundamental biochemistry (not urine analysis) to be followed by histology and physiology if the goal of graduate education in Pharmacy is to be a first class drug research man?

The plan of study of the graduate student should include a sequence of graduate courses designed to accomplish certain specific objectives. These objectives will differ to some extent in the several graduate areas of pharmacy, but even in an individual area of pharmacy we cannot be very restrictive in the plan. This is true since pharmacy is made up of the applications of the fundamentals of many disciplines. In the case of the pharmaceutical chemist he cannot study chemistry alone, he must know something about the actions of drugs in living organisms as well, and these actions must be correlated with his chemistry. A similar situation exists in the case of the straight pharmacist and the pharmacognosist. In any area, then, the advisor should add to a physical-chemical-biological base a sufficient number of area courses to give the student broad coverage of the whole area. Extensive specialization in a limited phase of any area should be post-doctoral; usually in pharmacy the need for a large degree of specialization can be determined only after the acceptance of some particular position. Secondary specialty courses such as a course in course designs for a prospective teacher should be included in those programs where the teaching profession is anticipated. The wise choice of minors adds still more breadth to the graduate program. Therefore, the general rule for any area should be that the graduate program should very broadly cover all the needs of that area.

A study of the specific foundation and graduate courses that should be available in any given area might well be the subject of a future teachers seminar.

### **Research Problems**

It is interesting to review the past and current requirements of different institutions for the Ph.D. degree. Usually

the only requirements common to all institutions are the dissertation and the final examination. This must mean that in the past, at least, the research part of the graduate program was the most important part of the whole procedure, and that the course work was considered secondary to the research. Is there a tendency for current graduate students and graduate directors to reverse this order? This should never be permitted since it will lead to second rate research and a failure to gain the prime objective of graduate study, namely, the advancement of knowledge through research. Possibly one of the main reasons for this misplaced emphasis is that the doctorate has always carried a dollar sign with it, in that it is often the principal qualification for employment or advancement. Persons that undertake the Ph.D. program mainly because of their fondness for the dollar are not usually the best research workers, and, therefore, they naturally gravitate towards the course part of the program. I have heard them referred to as "course takers"—they never seem to get ready to start their research. We should at the time we re-evaluate our graduate students stress the question "is this man really interested in research?" A profession devoid of research is not a "going concern".

Assuming we have a student ready for research, what should govern the choice of a research problem? Much has been written on this subject. Our students are all requested to read Uber, *Biophysical Research Methods*, 1st. Ed., page 1-38. Some of the thoughts enumerated there are as follows:

- (1) The problem chosen should be sharply defined, and the possibilities of a solution should be considered good.
- (2) Relationship to similar problems in the same field should be understood.
- (3) Completion of the problem must be possible in the time available.
- (4) Although the beginner because of his lack of experience needs sound help in selecting his problem, the final decision should be his alone.
- (5) The problem, *per se*, should be attractive to the worker.
- (6) The magnitude of the problem should parallel the degree sought.

As a rule, we suggest a number of problems, and ask the student to think the situation over before coming to a decision. He may actually do a little preliminary library or even laboratory work before making his choice. But he is required to make the choice. If he is to develop into a research worker it is imperative that he learn to make decisions. Unfortunately, this is difficult for many, since they have been "spoon-fed" ever since they started the grades, and as a result have grown accustomed to having the decisions made by others. After the choice of the project, the student is asked to present to his research advisory committee a written preliminary survey of his problem together with his plan of attack. The committee, of course, has the power of approval, modification or rejection of the proposed project.

With the approval of the project, the student receives a research notebook, and is assigned a desk in the laboratory. His major professor and members of his research committee are available at all times for consultation. In addition, he is required to submit his research notebook to his major professor monthly, and every three months a *special written research* report for that period is due. A copy of the special report can be sent to any sponsor. In addition, the students have found that such reports are also very helpful when it comes to writing the thesis. Throughout the period of active research work the student should feel that this is his project, and that he is the one that makes all final decisions. If the director insists on treating his graduate student as a technician he should expect him to act as one even after the Ph.D. has been granted. Maybe this accounts for some of our so-called "sterile Ph.D.'s"—the director is not there to make the decisions. Many times the possibility of using the research problem as a means of teaching the student all the different techniques possible has been considered. This I feel is a mistake—the problem should be considered solely as a problem to be solved in the most convincing way possible. If new techniques are required that is fine, but to run un-

necessary techniques for the sake of the technique alone does not seem to be very logical or scientific.

In the case of the Ph.D. the next order of business is the written and oral preliminary examinations. This is a critical time, and one has no doubt observed several different types of philosophy in operation at this stage of graduate training. One is characterized by the stand that the student cannot fail since it has cost a great deal of money to get him to this point. Another philosophy, diametrically opposed to the above, is that the student must convince his committee that he is really worthy of admission to candidacy. Both extremes have elements of merit and danger; some middle-of-the-road policy is probably the answer to the situation.

The defense of the Ph.D. research at the time of the final oral examination should be very much routine—if the work is in an unsatisfactory state the major professor should not agree to its formal presentation to the committee. Many will be quick to point out that there may be factors involved in the decision on the time a graduate student may present his thesis which are not fully controlled by the major professor. Should such a situation arise it should be treated as a special event in a manner which is fair and just to all. We have said that this examination should be very much routine. In fact, I would be in favor of limiting this affair to the final acceptance of the thesis by the committee. As a rule, the student knows more about the thesis than most members of the committee, and at times it appears that the committee members are being educated by the one who is supposed to be examined. In the case of the Masters' examinations the situation is a little different; here a determination of the students' progress in the field is being made as well as an evaluation of his research work. But even here the research should be handled very much as in the case of the Ph.D.

With the granting of an advanced degree requests for job recommendations are to be expected, and if the student and teacher have both done their job well such recommendation should be a pleasure. It is a source of pride to the re-

search director to know that his product is sought by others, and it is only natural for the research director to aid the course of his graduates whenever possible. In this light he is always appreciative of any information from any source which could enable him to improve his final product.

This review of the relationships between the research director and the graduate student has been confined largely to those involved in the selection of courses and those concerning the research. Other relationships are certainly just as important, and, of course, demand their share of the research director's time.

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## Advising Graduate Students in Non-Curricular Matters\*

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No statistics are available on the extent to which advice remains unused, but I venture the guess that it is one commodity not in short supply. It comes high when sought from the lawyer, the physician or the psychiatrist, but otherwise may be had in abundance merely for the asking and frequently is given even when not requested. As one wag put it, free advice is probably worth less than that.

My assignment is to discuss the advising of graduate students in matters that have no direct concern with their course of study. I approach this task with the poignant words of Portia sounding in my ears:

If to do were as easy as to know what were good to do, chapels had been churches, and poor men's cottages princes' palaces. It is a good divine that follows his own instructions: I can easier teach twenty what were good to be done than be one of the twenty to follow mine own teaching.

The title of my assignment implies that professors, for whatever reason, do advise and guide students in non-curricular matters. Arguments may be made against this point

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\*Read before the Section of Teachers of Graduate Instruction at the 1954 meeting in Boston.



of view, and as an excellent precedent against it one need refer only to a recent biographical note of Professor W. D. Bancroft, which appeared in *The Journal of the American Chemical Society*, 76, 2602 (1954), where Professor Mason says of him, "He dispensed no guidance". Nevertheless, in all human contacts, even where words may remain unspoken, there is always a mutual reaction between people who work closely together, and therefore the professor, by merely being alive has, I presume, an influence on his advisee. Furthermore, I am sure that in most instances the student-professor relationship is on a basis of considerable intimacy. If we start from such a premise, then the title presumes at least the following:

- (1) a professor who has some qualifications and competence for proffering guidance.
- (2) a student who may benefit by and desire such guidance and counsel.
- (3) that the two are congenial and have common interests that extend beyond the immediate boundaries of the student's major.
- (4) that advice will be appreciated and accepted.

As the evening's program suggests, counselling may conveniently be divided into the two topics before us, first, to help the student become a better specialist and future employee, and, second, to assist the student in becoming a better citizen of his community and his country.

Before discussing my topic, may I remind you that there are those who come into the graduate school primarily for the privilege of reaching that stage where they may put erudite-looking initials after their names. They somehow have gotten the peculiar notion that what counts is that piece of parchment which is distributed at a formal ceremony commonly known as commencement; for them the *sumum bonum* is the diploma rather than that for which it stands. When such a student appears on the scene, the professor's first responsibility is to disabuse him of that stuffed-shirt notion.

By and large a student comes to a professor with the firm hope that he may be helped to become more proficient and competent in his selected field of specialization. Accord-

ingly, the professor's biggest responsibility as an advisor is in connection with the student's course of study. Just as parents select for their children a music teacher of recognized skill and artistry, rather than one known for sweetness of disposition and congeniality, so the student selects his advisor because of the advisor's standing in the field which the student is adopting for his own. The wisdom of such selection is attested by the "voice of experience", for how often have we not heard the reminiscences of successful men expressed in terms like this, "Old Professor So-and-so was an intolerant autocrat, and it was worth your life to try to get too intimate with him, but he surely knew his field, and he had a way of making it stick with you"? Therefore, that part of the evening's program assigned to Dr. Edwards covers our greater obligation to the student.

At the same time I am only too aware of the fact that neither the professor nor the student is one-sided, that we all must be citizens of our communities, and I yield to none in agreeing that we also have an obligation toward God. I accept the Psalmist's teaching that "the fear of the Lord is the beginning of wisdom", and one of the most annoying questions, I find, is that asked by Jesus, namely, "For what will it profit a man, if he gains the whole world and forfeits his life?" The point I am trying to make is that there may be for the student a motivation which is more than mere academic ambition or a desire to make himself more valuable or intellectual curiosity; and for some it may even be a spiritual motivation.

"The Christian doctrine of vocation taught by Paul and confirmed with vigor by Martin Luther expresses the conviction that God calls most men to serve Him *primarily* through their daily work. We can do this by serving our neighbor, . . . the student who needs guidance and counsel."\*

The chemist, the pharmacologist, the pharmacist, the botanist, the physicist, each exercising to the utmost his own special talents will, in the words of Polonius, "To his own self be true, and it must then follow as the night the day, that he cannot be false to any man".

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\*Eckhardt, Lehigh University in *Christian Scholar*, June 1954, p. 130.

We do not receive our appointments as professors, however, because we are primarily moral or religious. We are first presumed to have special attainments or abilities which supplement the genius and total capacity of the academic community. Still, if over and above these indispensable qualifications we are at the same time motivated by the love of truth and of spiritual matters, then (according to a recent survey on which the *Journal of Chemical Education* makes editorial comment) we are the more valuable to the institution with which we have cast our lot. It seems to me that such an advisor, even in his purely academic capacity, must have a distinct and *significant advantage over the mere specialist*.

It is not necessary to belabor this point. For example, the scientific competence of a physiologist may not be less if he lives with a wife not his own. The brilliance of a mathematician may not be dimmed if he indulges to excess in alcoholic beverages. The reliability of a pharmacist may not be decreased if he employs eloquent profanity. The imagination of the chemist may not be distorted because he loves to gamble. Yet each of these specialists not hampered by such frailties is preferred as a teacher and guide of our students.

Now let us turn our attention for a moment to the graduate student. He is no longer an adolescent. He is, in fact, quite mature; his personality and character are well established, and he has his objectives quite clearly in mind. How much guidance and advice of extra-curricular nature does he want or need? There are, I suppose, the rare extreme cases where the suggestion must be volunteered, warning if you will, that the student is facing alternatives, either to do his work or withdraw from the university. Barring such instances, how far should the professor go with moral and religious advice? I hesitate to answer unequivocally. I suspect that, except where guidance is sought, our personal lives are the best testimony to our whole attitude to life and its meanings, and perhaps indirectly we exert an influence even when we try so hard not to do so. Every case must, I

presume, be considered individually, and I for one would be most reluctant to set up general directives.

Up to this point I have been dealing, not with the intangibles, but rather the controversial factors, such as ethics, religion, citizenship, and so on. Volumes have been written on these subjects, orations have been declaimed, and sermons have been delivered, so that it would be very presumptuous of me to dispose of these problems in one evening. My aim is to call them again to our attention, for whatever direction we may give the student along these lines, whether by word or example, depends pretty much on what we are. The importance of good teaching by precept along these lines cannot be overemphasized.

The other respects in which we may guide and advise the student are much more practicable. I shall enumerate some of these.

The first and probably most urgent matter for the student is the job he will take after he gets his degree. Frequently this resolves itself into a choice of teaching or going into industry. What are the advantages and disadvantages of each? Here the best we can do is to point out the essential differences as we see them, and too often this is difficult since for the most part we ourselves have had limited actual contact with the alternatives. Thus, for what it may be worth allow me to indicate what I tell the student, first as to industry and then as to teaching.

When speaking of industry we need not consider a job in production, not because our students do not accept such, for they are in fact very attractive, but rather because their value is so obvious; even an economy-minded board of directors can see the direct relationship between production and dividends. Development, too, though a step farther removed from the annual report, falls in a similar category. The student whose inclinations lie in these directions needs only to be reminded that so long as he delivers the goods his job is secure, and that his advancement is quite directly proportional to the energy and ingenuity he brings to his work.

May I say, in passing, that we do the student and the opportunity an injustice if we give the impression that we regard production or development as somehow lower in the social scale of employment.

Research in industry falls into a somewhat different classification. The hard-headed business executive, especially if he is disposed to be myopic, is likely to give considerable attention to the "cost" of research and thus give the research staff considerable cause for concern since it is hard to convince him that better things are still to be discovered. However, during recent decades research has proved that it "pays" and the board of directors with the long-range view considers it a wise and superior investment, not to say the *sine qua non* for survival of the industry.

Research in industry has many attractions and much to offer. It provides excellent facilities. The team work is of the highest order, as witness the number of authors who contribute to a single scientific paper, and progress does not proceed at a snail's pace, but rather one can see the fruit of one's efforts before the whiskers get gray. The contributions of the pharmaceutical industry to national health and well-being are second to none; in fact, the industry must be credited with the lion's share of recent advances. Finally, and this for the beginner is no small item, the pay is so much more attractive and the opportunities for promotion within the ranks of the company parallel the growth and expansion of the company and are not dependent, as is so frequently the case in academic ranks, on the funeral of a senior fellow worker.

How can a student weigh the offer from one firm against that from another? There are no absolute standards of course, but here are several criteria. First, how many distinguished "alumni" does the firm have? If the number is unduly large this suggests something unsatisfactory, and the prospective employee is well advised to look carefully into this, lest he later also find it desirable to become an "alumnus", for rarely do employees make a change without some

sound reason. A second way is to check the recent literature to determine the extent to which the company in question has contributed to the advancement of the profession by way of original research, to determine the caliber of the papers, and to get an idea of the company's interests. I could mention certain types of endeavor which masquerade under the dignified name of research in which I would have no pride and which, I fear, cannot lead to stimulation. On the whole, however, the opportunities for scientific and professional preferment for our graduates are better in industry than on the college campus.

The disadvantages include the risk that one may become a mere cog in a huge organization, a number on the payroll who loses much of his identity as an individual, and there may be little chance for individual initiative and originality, since cooperation and teamwork are of the essence. To be sure, all research programs must be designed to have a favorable ultimate reaction on the balance sheet, which means that research for the sake of mental stimulation only gets secondary approval.

In all this we must not overlook a corollary consideration, one which perhaps too few students realize. Not always is a student suited for the offer he receives, although he may not be aware of it. Where the professor perceives this he should frankly state his opinion, for if there is a mismatching between the company and employee, neither has been helped and, so far as the company is concerned it may lose interest in future graduates from the college involved. I can assure you that there is no recommendation for a former student equal to that implied when the company for which he works seeks another from the same source. The professor here has a two-edged obligation.

The professor-student relationship carries with it, I am sure, the implication that the professor will give an honest appraisal of the student's attainments, abilities and character. The fact that this relationship is allowed to eventuate in a degree implies further, in my opinion, that on the whole



that the appraisal will be favorable. If it cannot be that, then the professor should have earlier terminated that relationship, or at least have warned the student. However, a former student must also realize that while a professor's recommendation may carry considerable weight after the award of the degree, the importance attached to such a recommendation becomes increasingly less as time passes; and if the former student wishes to change employment, a favorable letter from his recent employer is probably of considerably greater significance. In fact, I should be very dubious about the caliber and success of a former student if, after ten years, I were relied on as one of the principal references.

The academic life, the other chief alternative, too, has its peculiar attractions and disadvantages about which the would-be professor may appreciate your guidance. As you know, there are many misconceptions about us, especially on the part of those who look at us from the outside. We have a very easy life, they think; every summer we have a long vacation with "nothing to do", or we have limited hours of class room work, much less than the public school teacher and certainly nothing like the legal forty hour week of the laborer. Before this group it is unnecessary to argue the false premises of these ideas. Nevertheless this is one view of the professor.

That there are unpleasant facets about the professor's job goes without saying. It is frustrating to deal with lazy or unfit students. We are forcefully and frequently reminded of the many glaring disparities in our actual remuneration and what might be had in non-academic employment, which is one of the chief reasons our best men are lured away from teaching. Perhaps we are troubled by the poetic injustice of having students come to the campus with cars better than we can afford.

I am an ardent supporter of the principle that intellectual capacity rather than ability to pay should be the first qualification for admission to and continuing in college. There is something incongruous in a situation where a man sends his

son to college to be taught by a \$5,000 professor but will trust his car only to a \$6,000 chauffeur.

These are all part of the job, irritating though they may appear, and the prospective college teacher should consider carefully whether his "call" is urgent enough to contend with them.

There are more deepseated and serious matters about the academic life that must be recognized and faced. I have in mind especially two. The first is the fact that academic halls and laboratories are no longer the exclusive areas of learning that they once were. This is the natural result of the scattering of college trained men into the professions, commerce, industry, that is, into society in general; I have already alluded to the leadership which the pharmaceutical industry has taken in health affairs. Therefore, as erudition becomes more widespread, we who would retain the cap and gown as the symbol of our calling not only meet kindred minds off the campus but frequently find them keener in non-academic circles. This condition is aggravated by the fact that many of our best colleagues are persuaded to desert our ranks. The net result of this has been to lower in the minds of many the esteem formerly held by the academic fraternity.

This was brought home forcibly to me in the following incident. To a well-established friend, a director of research for a large pharmaceutical company, I introduced another friend seeking employment. The latter could not be recommended without limited qualifications, but I pointed out to the research director that if the applicant were properly placed he would do an excellent job. The answer I got was this, "No, Walter, he'll never do in industry. Why don't you get him a job teaching?"

The other factor to which I would call the aspiring professor's attention is the spirit of anti-intellectualism now rampant and apparently on the increase. I am not speaking of the ridicule which is justifiably provoked by some of the dissertation titles as they appear on our commencement programs; nor do I refer to the recent graduate who swells into his doctorate-hood rather than grows into it. Rather, I have

in mind the spirit which is exemplified in the anecdote of the Arabian potentate who ordered an examination of the library in his realm; all that was contrary to the Koran was to be destroyed because it was false, and all that agreed was unnecessary since the Koran was supreme in all things. We seem to be in an era when we know that four plus four is eight but are uncomfortable with the fact. We seem to have some doubts that "life, liberty, and the pursuit of happiness" are among our "inalienable rights". I might elaborate on this point with considerable feeling, but you will know what I mean and realize how important it is that we fight for the intellectual and personal integrity of the individual, including that of the professor.

Such are the influences that come from the outside. What shall we tell the student about the things over which he will have more control? Let us begin with that which is pleasant.

There is about teaching the element which is sublime, not to say divine. The privilege and opportunity of working with young people is beyond evaluation. The exasperations of the dull and methodical student notwithstanding, the class room and the laboratory can be stimulating. The pay check may leave much room for expansion, but the friendships and loyalties of students are beyond compare. Further, if one is so fortunate as to have the opportunity to guide a superior student on his way to an advanced degree, his life continues, in a manner of speaking, into succeeding academic generations. In one respect I compare my friends who are so well employed in industry to the noble mule; they have excellent surroundings and working facilities and they are well fed; but they have, in a manner of speaking, no intellectual progeny. Let me assure you that the continuing and increasing satisfaction I find in the success and growth of those for whom I once endorsed a thesis is something for which words are inadequate.

Permit me to digress here a moment to discuss an ominous and short-sighted practice on the part of industry and of commerce. I have already referred to the inducements by which our most

gifted colleagues are lured away from their class room, and I have also indicated that the academic profession is not held in the esteem we covet for it, because of the caliber of those who remain as teachers, whatever the reason, leaves much to be desired. Just now I spoke of a type of "sterility" in those who are not professors. Thus, as a total society, we find ourselves in the anomalous predicament where the best stock for intellectual breeding has no chance of reproducing progeny; and society criticizes the colleges for the poor quality of its products.

Dare we look for a Jeremiah who can eloquently point out these inconsistencies and show us the road to a saner policy?

The nobility of the teaching profession cannot be gained. But, only noble things may be profaned, and so it is also possible here, and of this the would-be professor should be warned. I think the most serious, as well as the most pleasant, temptation is to vegetate on the job. Perhaps you recall the instance given by Bliss Perry in his delightful autobiographical recital, "And Gladly Teach", of his academic experiences. His father, he, and his son, all had a course under the same professor in one of the classical languages; he compared his class notes with those taken by his father and then, later, with those by his son, and he found them identical. Your advisee may argue that such a thing may be possible with a dead language, for it no longer changes from one generation to another, but that it could never happen in pharmaceutical education; pharmacy is alive and growing, and the alert professor just has to keep up. I will agree to the vitality of pharmacy but I am not so convinced that the absence of the temptation to the professor is real. For example, during the past three years I have been a member of the Curriculum Committee, A. A. C. P., and one of the haunts always lurking in the background of that committee's deliberations is the "old-fashioned" teacher. Would you like another indication of such symptoms? Have you ever, for example, heard an educator say that chemistry departments no longer present elementary chemistry in a manner that is suitable for the training of pharmacists? Are we to go back

to the pre-atomic age? Why not adapt pharmacy to the newer chemistry?

It was refreshing to read recently Dr. Udang's essay to the effect that it was the pharmacists of the time who forced the overthrow of the once regnant phlogiston theory. If those men were here today would they object to the newer chemistry?

A third prospect for the employment of the recent recipient of an advanced degree is in the domain of civil service. I should prefer not to discuss this, except to say that once I spoke highly of such opportunities where now I recommend caution. The spirit of anti-intellectualism, it seems to me, also manifests itself in the government, and indicative of the symptoms are the unpleasant Astin-Weeks affair of a year ago and the fact that a civil servant now seems to be considered fair game for the political opportunist. We need trained and competent men in our government laboratories and other positions, but a prospective employee should not accept such an appointment without appreciation of these unpleasant aspects.

Another type of opportunity is open to the occasional student, which the professor should keep in mind. I refer to a post-doctorate fellowship. It offers an unusual means whereby the candidate may broaden his experience and contacts, and it is to be recommended especially for one who has had all his training at a single institution, as a means of counteracting his provincialism.

So much regarding guidance toward a future job. There are other matters which the student and his advisor will discuss, the extent and character of which will be determined by the personalities and circumstances concerned. It is quite impossible to consider all of these. There is yet one matter which we may properly consider here, however. I refer to the necessity of getting the student to realize the need for his continuing growth in the field of his special interests. He must be warned to beware of that insidious unknown thing

which can do for him what 3,6-dihydroxypyrimidine does for plants. Perhaps you are more familiar with this compound as maleic hydrazide, a chemical which fulfills the dream of all who have to push a lawnmower, for it does not kill vegetation but merely, after proper application, retards or virtually stops further growth. Whatever this unknown factor is, in many, regretfully, it seems to be applied simultaneously with the award of an advanced degree; and how many thus afflicted get into teaching, I am loath to say.

Earlier I spoke, though somewhat facetiously, of the well-trained man away from the class room as sterile; a post-degree sterility with respect to scholarship is even more to be deplored, and non-productive scholarship in our colleges is the most deplorable of all.

We must impress the student while he is still with us that he may overcome this tendency to inertia, at least in part, by uniting with others of similar interests. He should be urged, for instance, to join himself to learned or scientific societies, take part in their activities, for what he gets out of them will be somewhat proportional to his participation in and contribution to them. The annual assessments for belonging may loom large at first, but in subtle ways the investment comes back manifolded.

Dr. Frank B. Jewett, at the time president of the Bell Telephone Laboratories and president of the National Academy of Science, in speaking of the remuneration of the scholar and scientist, listed as one of the compensations the chance to discuss with others of similar interests the matters of mutual concern and to get from them approval for one's own efforts and accomplishments.

The idea I am trying to emphasize here is that as professors we must impress on the student, by preaching if necessary but by example preferably, that he can be more efficient in his total social obligations if he becomes an active, participating and contributing member of those organizations which best represent his interests and endeavors.



## **Toxicological Education in American Pharmacy Schools**

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In 1922 when the pharmacy curriculum requirement for the PhG degree was only two years, the syllabus included a course in toxicology and recommended 26 hours to be spent on the subject. Toxicology was defined in the Third Edition of the Syllabus as, "Toxicology treats of poisons, their recognition, effects and antidotes." In 1927 in a study participated in by the American Association of Colleges of Pharmacy, the National Association of Retail Druggists and the National Association of Boards of Pharmacy, a course in toxicology was recommended and outlined. The type of study recommended was largely clinical in nature. In 1945 the Pharmaceutical Syllabus mentions toxicology only incidentally to the teaching of pharmacology. Toxicology is not defined in the syllabus but the mention that is made of it under objectives in the pharmacology course indicate that it is to be treated from the clinical standpoint.

In 1947, Hine made a study of toxicology instruction in 72 medical schools of the United States and found that six schools offered work in the chemical identification of poisons. In the same study it was shown that 13 schools made their toxicology lectures available to students of pharmacy. Hine concluded from his study that "... in the majority of medical schools, toxicology is taught exclusively in the course of pharmacology and as an adjunct to that subject", and also "... that there is very little opportunity for the medical student to obtain instruction in basic toxicology which would serve as a background for occupational medicine." A later study of toxicological teaching in pharmacy schools in 1950 by Rice and Hine shows a continuing interest in this subject and gives two important conclusions. They showed that more than half of the courses given in toxicology are included in the pharmacology course and that training in toxicology was a vital part of the pharmacy student's education.

In an attempt to discover what progress has been made in the development of toxicology teaching, a questionnaire was sent to sixty-six schools of pharmacy in the United States in January of 1953. Replies were received from sixty Deans or staff members or about 91% of the schools queried. The questions asked were designed to bring out the degree of emphasis in the teaching of toxicology as applied to clinical and chemical toxicology, the overall objectives of the toxicology course, its standing in the curriculum, that is, whether or not it is required or elective, graduate or undergraduate, the text, the time spent in teaching the course and the proportional distribution between laboratory and lecture time. All questions were made as objective as possible, being framed in such a way that a yes or no or a single word sufficed for the answer. Not all the questions were answered, the most usual reason given being either that toxicology was not taught or that it was given only incident to the teaching of pharmacology. In a few cases, formal toxicology lectures and laboratory exercises were given in the pharmacology course.

In answering the questions, twenty-five of the sixty schools reporting said that toxicology was taught as a single, separate course. Forty-eight schools responded to the second question indicating that in only fifteen was toxicology essentially a course in chemistry, dealing mainly with separation and identification of poisons. Forty-two schools replied to the third question, sixteen reporting that their course in toxicology was essentially a course in clinical toxicology. Seventeen schools indicated that their course was a combination of both chemical and clinical toxicology. When asked to give the basic objective of the toxicology course only forty-eight schools replied. Twenty-seven said that it was clinical, four that it was chemical and seventeen said that it was both. Twenty-five schools indicated that the course was required for graduation and thirty-five schools said it was taught primarily on the undergraduate level. Five schools had courses on both the graduate and undergraduate levels.

The thirty-eight replies regarding the texts used were something of a revelation. Fourteen said they used Theines and Haley; four gave Krantz and Carr; three, Bamford; one, Turner; one, Bastedo; two, Davis; two, von Oettingen. The remaining eleven schools reported that no text was used but that notes and references only were used. It must be assumed that those that did not reply use no text other than the pharmacology text, and of those reporting only nineteen are using a text book devoted solely to the subject of toxicology. Of these at least four are evidently using the text mainly for its clinical rather than for its analytical content.

Thirty-nine schools gave the amount of time spent in teaching toxicology with eleven reporting a one quarter hour course, one a two quarter hour course and two gave a three quarter hour course. Fifteen gave a one semester hour course, three gave a two semester hour course and one gave a four semester hour course. The remaining answers indicated a short course of four to six weeks or a course combined entirely with pharmacology. In replying to the query about proportion of laboratory time, ten schools gave one laboratory per week in the course and two gave two laboratory periods per week. The remaining schools said that the laboratory was combined entirely with that given in pharmacology. Three schools submitted syllabi of their courses. It was very difficult to get a picture of the time spent on toxicology since many schools again confused their answer by not indicating the time taken from pharmacology instruction for instruction in toxicology. It was no doubt difficult to make this differentiation in many instances but this lack lessens the validity of the survey. Even the answers to the question on proportion of laboratory time indicated that many of the experiments were pharmacological in nature and did not involve the identification or separation of poisons.

It does not seem logical that a knowledge of clinical toxicology obtained by the pharmacy student in any good course in pharmacology, is sufficient for a person who is devoting much of his professional life to the purchase, storage, mixing, dispensing and sale of practically every poison used

in modern commerce. It does seem logical that a knowledge of the means of identification and the preparation of poison samples for submission to authorities for analysis would of necessity be an integral part of the training of such a person. It should also be remembered that there are many instances when the pharmacist may be the only person in the community other than the doctor that has any knowledge of legal medicine and the proper procedure to follow in the preparation and shipment of samples for analysis. If neither the pharmacist nor the doctor is trained to meet this type of problem, where can the community turn for its solution? It also seems specious to argue that the dispensing pharmacist will never have any need for such knowledge, it being obvious that his constant contact with the public places him in a position where he may not only be called upon to give emergency treatment but may be called upon to give advice and help in many other phases of toxicology. Neither should the fact be forgotten that we are training people to occupy many positions other than that of dispensing pharmacist. To paraphrase a statement from Hine, it is doubtful if our students are now receiving adequate training in basic toxicology which would serve as a background for occupational pharmacy.

In reviewing this survey, it is the author's opinion that the present amount of training in chemical toxicology is not sufficient to meet the needs of pharmacy as a profession. That too few schools even recognize the existence of chemical toxicology and have no regard for the need in the pharmacy curriculum. It would seem from the data given here that at present we are training an insufficient number of toxicologists who are able to go into a laboratory and carry on toxicological studies requiring a knowledge of the methods of separation and identification of poisons; or who are at least sufficiently well prepared that they know the proper procedure to follow with a sample to be sent for analysis; who are able to give proper professional advice to those asking for information of a toxicological nature; or who are sufficiently well informed to take graduate work in ad-

vanced toxicology without having to begin on an undergraduate level. The present survey throws doubt on the adequacy of the toxicological training being given to undergraduates in the majority of our schools of pharmacy.

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## Objectives in Teaching Microbiology\*

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A discussion of the teaching of microbiology to students who plan to enter the pharmaceutical profession may well start with a consideration of the concepts on which our problem rests. The Chairman has said, reasonably, that we should declare our objectives before we consider how to meet them. A man well known in educational circles, Ordway Tead, has put it: "We found that as soon as people could see the peak from every point on the road, many more completed the climb to the top."

Before we can present any objectives, however, we must know something about the semantics of the language used and about the limits imposed upon the subject of our dis-

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cussion. This last point is mentioned advisedly. For the benefit of younger men, I explain that academicians, when confronted with simple problems, feel strong urges to expand. If their problem is how to get a welcoming committee for a foreign visitor, they will quite surely wind up with resolutions on international armament to be sent to the United Nations. In simple language we should know how far we can go and what we are talking about.

Our subject, the teaching of microbiology, has two parts, *teaching and microbiology*. The educationist is supposed to know how to teach any subject. The microbiologist is supposed to know something about his microorganisms. We are gathered here because educationists, inexperienced in microbiology, cannot know the subject; and because microbiologists cannot know all about teaching, even in their own subject. Our present task is to examine these two phases of our efforts and to consider an effective integration of the two. Incidentally, no more introduction than this is needed to provoke sufficient confusion to provide a basis for discussion. Ask the two basic questions, "What is microbiology?" and "What is teaching?", and we should all be mounting our hobby-horses and riding off in all directions. At the moment, since I have the floor, I shall declare that any absolute answer to these questions would be not only improper but naive. Those who wish to make objections will no doubt have an opportunity to do so.

One question, "What is microbiology?", we can face head on. Most of us started as microbiologists and added teaching incidentally. This is rather disturbing to the extreme educationist, who thinks we should learn how to teach, adding microbiology, if need be, incidentally; but the teaching phase will be discussed later.

"Microbiology" as a term was invented long ago to meet a semantic predicament. There are in biology many kinds of small organisms, microorganisms. Different men claim different groups of these microorganisms, each saying that his set has separate features which enable him to specialize. How many of these sets there are is not important, but for



purposes of argument let us say that there are six, the bacteria, the yeasts and molds, the spirochaetes, the protozoa, the rickettsiae, and the viruses. Each of these sets is composed of microorganisms. For each set, with imperfect success, a unique definitive compendium of characteristics can be claimed. What a biologist does after that depends on his training, preference, politics, and conceit. He can perhaps claim to be a bacteriologist, a virologist, or a mycologist.

This is awkward. What professional college can afford to hire five or six specialists, one for each branch of microbiology; or, what college would put in its catalogue "Algernon Himmelburger, Associate Professor of Virology, Rickettsiology, Protozoology, Mycology, and Bacteriology?" Yet undeniably these are, within limits, specialties.

To make the situation more complicated, a look at cross sections of these specialties reveals that we can talk about metabolism, immunity, infection, and morphology, for example, with the microorganisms of any set. In fact, this is almost obligatory. In terms of infection or metabolism a spirochaete can be similar to a bacterium and a bacterium may resemble a virus. In discussing properties and activities, restriction to one set of microorganisms is often unwise and unnecessary. There are specialists in this lateral direction also, though they are less well defined. One of our more eminent bacteriologic experts in the metabolism of microorganisms was long called a plant nutritionist. I once attended a meeting at which a similar specialist expressed extreme indignation at my skepticism over his remark that microbiology was only a phase of plant physiology. "What else is there?", he said, daring me to speak. Likewise, there have always been a number of enlarged egos who declined to be called mere microbiologists or bacteriologists; *they*, if you please, were immunologists. Today we can find cytologists, cyclogenists, and geneticists; and for that matter, malariologists, syphilologists, and, (except that he is no stuffed shirt and would shoot me for suggesting it) a coccidiomycologist.

Since it is possible to specialize in any of some five or six vertical topics, with viruses in one, bacteria in another, and so on, or any number of horizontal sections, such as in enzymes, morphology, antigenicity, industrial applications, and so on, we arrive at a need for decision. Vertical division requires the term "microbiology" so long as more than one or perhaps all groups are included. The horizontal viewpoint requires the term, "microbiology," unconditionally, for study of the morphology, metabolism, antigenicity, or pathogenicity of microorganisms cannot reasonably be restricted by boundaries which limit such studies to only one set of microorganisms.

Focusing this thought on pharmacy students, their interests in this field are unquestionably on microorganisms in general. The thought of one unit of bacteriology, one of virology, one of mycology, and so on or, speaking laterally, one unit in morphology, one in metabolism, one in pathogenicity, and so on, would so seriously restrict any person teaching one or more than one such course that the separation or overlapping would be insufferable. The trend is toward specialization and endless subdivision among microbiologists, yes; but our current problem is a teaching problem, calling for an improved perspective toward microbiology as a whole and for better integration with the whole field of pharmacy. We must keep in mind that we are putting microbiology into the pharmacy, not making microbiologists of pharmacy students. Our objectives, with reference to students, include some understanding of infectious disease, biologic products, metabolism, epidemiology, sanitation, and other widely different phases of microbiology; and this knowledge is to be linked at the other end with knowledge of physiologic responses to drugs and every other subject in the college catalogue. The course in microbiology which has set for its function the mere presentation of some of the routine facts of microbiology has little place in a professional school, for it is only laying on the table a few trifling facts, leaving to students, the neophytes, the responsibilities for the more difficult task of integration. Under such conditions other teachers

acquire both a burden and privilege which should not be theirs. On the other hand, if we make an issue of biologic relationships, a controversial subject which can easily be pure dogma or thin opinion, some teachers would go to far afield instead of using breadth of viewpoint legitimately, to enlarge the outlook of students in a thought-provoking way. John Dewey once gave a lecture<sup>2</sup> on Huxley's illustration of the biologic and environmental forces in a garden which carried this topic into far reaches of philosophy but the usual time and talent permit few episodes of such quality.

Before we leave the first phase of our topic, the concept of microbiology, we should take a brief look at its allies. The Chairman of this panel is a Professor of Microbiology and Public Health. Public Health and Preventive Medicine are both poor terms descriptively but we understand their meaning, after a fashion. Under whatever name, problems of public health, sanitation, and the prevention of infectious disease are inextricably and basically associated with microbiology as far as infectious disease is concerned. It is most disturbing to dissociate the epidemiologic phases from microbiology, whatever the names of departments. The problem we face in this discussion must eventually come back to men and departments, but we must uphold natural relationships of topics, for we shall make little progress if we start with the limitations imposed by departmental lines.

Our objectives in presenting microbiology surely include the attainment of the best possible balance of topics. A plan in one school calls for four units of microbiology, one unit of biologic products, three units of a perhaps unique blend of helminthology, protozoology, and mycology, three units of antibiotics, and five units of public health. These proportions grew by the usual Topsy-like growth mixed with expediency, with no regard for a sound balance among the subdivisions of microbiology. Without regard to personal or departmental lines, a balanced blend should be our objective, a blend of the five or six sets of microorganisms, determined in terms of biologic significance, basic gain in understanding.

In this blending process, there are reasons why the term, "bacteriology," has been used almost synonymously with "microbiology." This has been due in part to historic precedence, but, more important, bacteria, themselves noteworthy, have been our most prolific source of microbiologic techniques. Bacteria have been the most easily cultivated, and until recently the only ones which could be studied metabolically and antigenically. Bacteria can be counted easily, tested with disinfectants, and examined for enzymes and toxins. Other microorganisms have been gaining in these respects but the bacteria are and may well remain significant not only in their own rights but as the prime examples of microorganisms.

The objective in a perfect blend is to give to bacteria both their intrinsic role and an exemplary role without either under or over emphasis. The attainment of this blend is complicated by the human factors. Virologists may feel that they are a breed apart, immunologists are often exclusive, experts in metabolism sometimes feel that only they deal in basic science, and mycologists are botanists and protozoologists are zoologists, notably different in outlook from bacteriologists. In seeking the perfect blend we have three factors to weigh: (a) The perfect blend must consider the relative weights of each kind or set of microorganisms, (b) it must consider the relative weights of the phases of study needed to give principles and basic understanding, and (c) it must ignore yet base its procedure on the human elements that emphasize one part over another because of personal biases. This is a large order, but it does not alter our goal, a blend which is more than a compromise, a blend which can stand on its own merits.

On the first half of our two way problem, then, the objective seems to me to be a presentation of a full-scale microbiology with a pharmacist's perspective, linked to other phases of the professional training at several points. This perspective, to be effective, must be specific for pharmacists whenever possible, if we are to follow the thesis that the best teaching is done with a student on one end of the log and

Mark Hopkins on the other. The pharmacy profession is not dental or medical and its members are entitled to their own viewpoints and to teaching aimed at those viewpoints, so far as possible. Given pharmacy students, however, let us teach them *microbiology*!

The second half of the problem can be put as tersely: Let us *teach* microbiology! Our lectures, demands, demonstrations, or harangues will do no good unless we present the subject effectively to the students, able and willing ones, if the schools hold to both professional and realistic standards and if we do our parts.

The scientific approach to our objective in terms of teaching would call for an analysis of such of the educationists' principles as they apply to us, an analysis of principles which we as microbiologists find to be especially pertinent to our field, and a consideration of the special problems associated with teaching in a professional school. Through our escape from the first two is doubtful, there are good reasons for jumping to the last of these, professional application. That is, we are not called together for instruction by educationists or to weigh such matters as visual education, grades, examinations, or seminars in any generic sense. Our problem is to find the blend in microbiology best suited to pharmacy students and to see that it is effectively presented as we have worked it out. Microbiologists are likely to be more interested in microbiology than in teaching it; the other extreme is seen in advertisers or exponents of propaganda who put their emphasis on selling the message, not on the worth of the message. We are to bring these two extremes together. Our obligation is toward the goal set by a happily disillusioned writer of popular medical articles, Edith Stern, who said<sup>3</sup>: "But there is a way of ending the wrong kind of popularization . . . gentlemen's agreements among themselves never again to distort 'This is so' into 'This it it!' or to fan cool facts into hot news."

This paper, by assignment, concerns objectives in teaching microbiology. This precludes a consideration of the general techniques of teaching but it may be proper to touch on

one or two principles behind these techniques in which our objectives are involved.

Let the *teaching* of microbiology begin with a worthy goal: a real comprehension by our students of some of the basic elements of microbiology, independently attained and individually retained. This opposes another common objective; on this point I shall be a little insistent. The objective is not to see how many purported facts a student can recite on the day of examination; it is to offer each student something sufficiently useful, basic, and profound to be of use to him in his studies and in later years. Anything else is wasted motion.

About a year ago in the *South Atlantic Quarterly*<sup>1</sup> I presented this problem in a language familiar to us, in terms of active and passive education. Active education is that in which the cells and humours of a student are activated toward a real and lasting understanding. Whatever the detailed mechanism, there is an individual acquisition by the student through his own efforts. Passive education on the other hand, is passively received by students. The teachers' ideas or those of a text are merely installed for the moment; education is surgically implanted in an anesthetized student. Theoretically there is a place for both of these processes, but certainly the active process is preferable; for example, the alphabet may be passively implanted, but only so that active processes of learning may proceed. Restricting this thought to microbiology and to a professional school, some active education seems especially pertinent.

For example, we are not merely *instructing* our students as troops are instructed by drive and drill, a process of passive education, planting information for a short time. We are giving them part of an education which we hope will serve for a professional lifetime. We are not in the classroom to stamp our ideas on their souls, but to help them toward a basic comprehension. We should not seek to make walking encyclopedias of them but should give them a basis for reading, judgment, and understanding. In microbiology the facts are notably elusive and unstable, so that unless stu-



dents can acquire a critical judgment which accepts nothing but seeks a genuine understanding we have failed in our teaching. This, I think, demands a maximum degree of active education, a minimum use of passive education.

On the side of *teaching* microbiology, the development of critical judgment as such can serve all professional training as well as our subject. We are here a closed group, by definition if not in fact; any remarks we make will be theoretically restricted to microbiologists. We can therefore in confidence admit that microbiology is full of hot air. Unless students know this, we are Barnums who perpetrate hoaxes on customers necessarily high in gullibility. A little knowledge without corresponding judgment is likely to be destructive. Osler puts it: "Often this ignorance must be very tantalizing, but it is more wholesome than an assurance which rests on a thin veneer of knowledge."

Some microbiologists will no doubt object to this puncturing of our dignity. If there are such, a few illustrations may help. Just what has happened to the scores of their purported vaccines over the past half century? Yet the same basic errors are repeatedly yearly—and nonmicrobiologists will see counterparts in such things as antihistaminics and Hadacol. The current splurge in the transposition of genetics to microbiology interests a number of its teachers but, in terms of teaching, the subject may well have no more than a couple of pages in the texts of the future. Again, microbiologists as well as others are tempted by the ease with which the exotic or new is mistaken for that which is better. Or, consider the endless microbiologic errors in the field of disinfectants, from Koch's failure to realize that mercuric chloride looked better than it was down to more than half of the latest arrivals on the shelves, whatever they are, all assumed to do one thing because they do another. Again, think of the ample evidence (a) that infectious diseases differ one from the other and (b) that immunity, when there is any, involves everything from phagocytosis to hormones and mechanical barriers, and then weigh the number of times most of us have been sucked into that simple absurdity, "it is all in the anti-

body." A noted surgeon, speaking of these errors in judgment, says<sup>6</sup>: "Not only are the more familiar logical fallacies (e.g.), *post hoc, ergo propter hoc*, committed over and again, but there is a conspicuous lack of . . . awareness of the arbitrary and man-made character of nosologic classifications." Another surgeon writing on education, remarks that<sup>7</sup>: "The so-called medical literature is stuffed to bursting with junk, written in a hopscotch style characterized by a Brownian movement of uncontrolled parts of speech which seethe in restless unintelligibility." Examples of both error and criticism are numerous. They demonstrate that our students need to do their own thinking, and to do this requires at least as much understanding as it does factual information. Knowledge is a stage beyond information; understanding is a stage beyond knowledge. Put another way, built on knowledge pharmacy is a trade; add understanding and it is a profession.

In weighing our objectives we shall have to consider *what* facts we shall present and *how* we shall offer them, though I hope this is not too heavy a burden on us. There is no doubt, at least in my mind, that the *what* and *how* of presenting our facts must be made subordinate to the question of *who*; a teacher is most effective when his personal talents are fully utilized. There have been many attempts to prescribe what shall be taught and educationists have tried to tell us how to teach it, but those of us who believe in our country, our subject, ourselves, and the professional status of pharmacy, can well afford to include the preservation of a fair degree of individualism as one of our prime objectives.

Think of your associates and staff, of your own teachers, and of those you have heard talk, and realize how much the success of those who did succeed depended on the degree and manner whereby they drew upon their own experiences, trainings, and outlooks. Look upon the teachers whose successful *teaching* you remember gratefully—there will not be many, if you make teaching rather than drama the criterion—and realize the extent to which their teaching was their own. Then think what your own teaching would mean to

you, if one of the stereotyped sort of educationists presented you with a set formula for teaching and one of our ubiquitous and earnest committees confronted you with an outline and a series of facts you were supposed to teach. Efforts are made to do these things to us, and it may be that they are on the increase. There is no more weary an objective than this, no more sterile an educational procedure. Any school so set in its ways as this I hope will employ none of us, but will seek someone very young and naive or a bailiff who will see that orders are carried out. There is no place there for a teacher. Hans Zinsser, an independent teacher, once said: "Medicine is not a trade that can be drilled into an unprepared mind by shop methods."

I hope that our discussion, whatever direction it takes, will admit, in common with the better educationists, that there are a few rather flexible teaching principles, and will acknowledge, as experienced deans, teachers, and pharmacists know, that there are a few flexible, basic, worth-while ideas in microbiology around which an understanding must be built. Our real objective is to combine these basic essentials with our individual talents, viewpoints, knowledge, and experiences to produce effective teaching. It would be profitable in one sense to substitute for the present panel discussion, which can only seek those principles which apply to most of us rather than to individuals, and instead to have as many of us as possible deliver, each, one of his favorite lectures just as given to students. Not only would this give us an insight into the significance of an individual approach, but we should thus effectively add new ideas about specific topics, each of us to his individual needs, tastes, and talents.

If teachers are conceded to be individuals, this is even more true of students. Whatever anyone may say about organization, joint effort, and cooperation, teachers will remain as individual as our Miss Brooks and Mr. Peepers, or as you and I, and so will students.

This objective is not specifically microbiologic, so I do not feel privileged to develop it further, but the lesson may well be applied to our branch of biology. It is essential in

teaching to keep in mind the fact that each student, though you have had many (my score is about 5000), comes from a different home, has had different teachers and different experiences, and has a different set of talents, a different outlook, and even a different constitution, and that each student, like each teacher and everyone else, is and will be obliged to live within his own skin with ideas which are behind his own eyebrows. Though the worship of committees has nearly caused many of us to prostitute our individual outlooks, usually by platitudinous yielding to expediency, there is no thesis more clearly demonstrated and provable in teaching than the thesis of individualism. Next time someone mentions "group dynamics" or even that little word "cooperation," which often means doing what the other fellow wants you to do, have the courage to stand on your own feet.

An old rule says that a speech should tell 'em what you're going to say, say it, and tell 'em what you've said. We have reached the third stage. I was asked to present the objectives in teaching microbiology. This called for emphasis on both teaching and microbiology. We found *microbiology* to be a subject often defined by our own interests; in truth, however, it is a broad mixture of topics, the components to be blended without regard to our interests. Bacteriology remains an important subject and our exemplary subject, but it is not our only one. I hope that this blend may be discussed, not by salesmen who want to push their hobbies but by judges who seek the flavor of the best blend. *Teaching* was described as an individual operation on the part of both the teacher and the student. The common concept of a teacher as a person with an outline who lays a course before a class to be swallowed by its members is the most sterile concept in teaching. No matter what our system or ideal, the fact remains that an individual faces a group of individuals. The teaching objective works from a few essential facts, with a minimum of microbiologic terminology, toward a basic understanding. I hope that I have done a little more than to stretch into a chain of words a simple axiom and that I have put some substance specifically behind this axiom: That we

have as our objective individual knowledge and understanding on the part of our students.

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## The Importance of a Knowledge of Microbiology to the Hospital Pharmacist\*

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In 1937, the author published a paper entitled "The Teaching of Bacteriology to Pharmacy Students<sup>1</sup>, in which the then editor of the *Journal of the American Pharmaceutical Association* introduced the article with the following statement: "The vision of any professional group must be an ever-expanding one if that profession hopes to hold a place

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\*Presented before the Section of Teachers of Biological Sciences, AACP Convention, Boston, Mass., August 23, 1954.

<sup>1</sup> *J. Amer. Pharm. Assoc.*, Vol. XXVI, No. 7 July 1937, pp. 661-664.

in the world of service." If the vision of teachers of microbiology is to be "an ever-expanding one," then efforts must be made to increase the usefulness of this science if the "profession hopes to hold a place in the world of service." That is the objective of this symposium and of this section relating to the hospital pharmacist.

As to the importance of this subject to the practicing pharmacist, there is at this time no great difference of opinion. In all fairness it should be stated, however, that a knowledge of microbiology is probably not utilized as fully as other courses in the pharmacy curriculum, but this should not detract from its importance. While the value of this knowledge to the practicing pharmacist may not be apparent at all times, the potentialities for use of such information are far-reaching, including services in connection with community health, civil defense, and local and national emergencies.

While a knowledge of microbiology is useful to pharmacists generally, there are reasons why it may be especially valuable to hospital pharmacists. An understanding of the specific causes of infectious diseases, the manner in which they are transmitted, the specific measures for prevention and control, the production and use of various biologicals, the antibiotics, etc., are of much importance to pharmacists generally, but especially to the hospital pharmacist.

Of equal or even greater potential importance is a knowledge of the microbiological diagnostic tests which are an essential part of instruction in the subject; under some circumstances the hospital pharmacist may make use of such training in laboratory diagnosis as a part of his regular duties. While large hospitals have separate diagnostic laboratories in addition to pharmacies, most of those located in small towns and in rural areas are not so fortunate. It is in this latter category that hospital pharmacists make the most use of a knowledge of microbiology.

According to a survey conducted by the Journal of the American Hospital Association in 1952<sup>2</sup>, of 6076 hospitals reporting in the survey (out of 6200 approved by the American

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<sup>2</sup> Hospitals: Administrative Guide. Amer. Hosp. Assoc., Vol. 27, No. 6 Part II, June 1953, Pg. 26.



Medical Association) 5,173 had diagnostic laboratories, whereas only 3,245 had their own pharmacies. From this survey it is apparent that far greater stress is placed on operation of clinical laboratories in hospitals than pharmacies, and yet 903 of these hospitals did not have facilities for laboratory diagnosis.

In another survey conducted by the Council on Medical Education and Hospitals of the American Medical Association, the results of which were reported in 1954<sup>1</sup>, approximately the same results were obtained, but the information secured was presented in greater detail. According to this survey, of 6,840 hospitals registered, 931 had no laboratory department (83 others not reporting) and of the 5,087 general hospitals, 462 had no laboratory department. Also of the 4,625 general hospitals with laboratory departments, 1,109 did not have a physician in charge. Of the 6,840 hospitals surveyed, 4,079 reported the services of full-time pharmacists and 653 part-time pharmacists. It is apparent from this survey that a large number of hospitals, approximately one-seventh of the total registered, and one-eleventh of the general hospitals, do not have laboratory departments.

For economic reasons it may not be feasible for some of the smaller hospitals to provide for both diagnostic laboratories and pharmacies, but it may be possible for some of them to supply both facilities in one department if pharmacists were qualified to conduct some of the more common and important diagnostic procedures. In order to qualify pharmacists for this additional service, it is necessary to evaluate the scope and character of training presented in the pharmacy curriculum, including especially the instruction received in microbiology.

Instruction in microbiological diagnostic tests should, of course, be an important part of the course in the subject. This is especially true of courses designed solely for pharmacists, such courses being properly designated as pharmaceutical microbiology. General courses in the subject are wholly inadequate for the purpose. The courses in pharma-

<sup>1</sup> Hospital Service in the United States. Arestad, F. H. and McGovern, Mary A. Jour. Amer. Med. Assoc., Vol. 155, No. 3 May 15, 1954, PP. 255-278.

ceutical microbiology should be essentially the same as courses in medical microbiology presented to medical students. The courses may not be quite as extensive, but they should cover the same general range or scope. They should at least be abbreviated courses in medical microbiology. This is done at the present time in most pharmacy schools.

As the result of such instruction properly trained hospital pharmacists should be capable of conducting the microbiological diagnostic tests for at least the following diseases:

- Tuberculosis
- Diphtheria
- Gonorrhea
- Meningitis
- Pneumonia
- Typhoid and paratyphoid fevers

In addition, the following laboratory tests may be conducted:

- Antibiotic sensitivity tests
- Blood cultures
- Water analysis
- Milk analysis
- Sterility tests

It is apparent that the pharmacist may obtain adequate instruction from the regular pharmacy curriculum to properly conduct some of the simple clinical laboratory tests if called upon to do so. It would be well to state that such instruction would not make medical technologists of pharmacists, but as mentioned previously, need for such knowledge on the part of the hospital pharmacist often arises and he should be prepared to meet that eventuality.

It seems clear that the hospital pharmacist may expand the area of his usefulness by making practical application of information obtained in a course of pharmaceutical microbiology. This would be especially true, as just stated, provided the scope and character of the instruction emphasize the more important microbiologic diagnostic tests. Needless to say, such a course should include considerable actual experience in the conduct of these tests so that they could be conducted accurately and with confidence by the student and later by the hospital pharmacist.

It may be assumed that all courses in pharmaceutical microbiology at this time include instruction in these microbiological diagnostic tests. This would not necessarily be true, however, of general courses which do not emphasize the medical aspects of the subject. It therefore becomes a matter of scope and emphasis if such courses are to be of most value to pharmacists. In addition, certain pharmacy schools, especially those having medical school connections, may well offer special elective courses in laboratory diagnosis designed especially for hospital pharmacists. Such elective courses are already offered in some pharmacy schools for those students who intend to become hospital pharmacists. This offers additional opportunity for microbiology departments to extend the scope of their usefulness. It would seem that pharmaceutical microbiology may well expand its field of usefulness to this extent if it "hopes to hold a place in the world of service", especially to hospital pharmacists.

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## **The Scope of the Course in Microbiology for Pharmacy Students\***

**S. E. HARTSELL**

**Professor of Bacteriology, Purdue University**

The *objectives* of the course in Microbiology have been presented. Since the *scope* of the course is so closely related to the objectives there remains only the consideration of the range within which the subject expresses itself, the field to which the subject is limited, and the extrinsic factors that affect its presentation. The acceptance of the course in the curriculum is no longer debatable; it is very consistently required.

Microbiology is the study of microscopic forms. The bacteria, the molds, the yeasts, the rickettsiae, the protozoa and

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\*Presented before the Section of Teachers of the Biological Sciences at the 1954 meeting in Boston.

the viruses are groups of microorganisms from which examples or cultures may be drawn. Certain algae or metazoa might also be included for contrasting purposes. To achieve the objectives of the course the content should include consideration of all groups. In the didactic instruction this may be possible, however, there is usually a time limitation which determines the completeness of their consideration. In the laboratory, selection of the few groups to be studied is usually done with the comparative aspects of biochemistry, cytology, cultural characterization, availability of materials and applied interest being the determining factors.

Previous declarations from those within the pharmacy profession clearly tell us what the scope and the emphasis of the course should be.<sup>1,3</sup> "The course in microbiology should be a comprehensive one covering the basic principles of microbiology and related subjects as indicated by the objectives. The major part should consist of the study of the general characteristics and activities of microorganisms, employing the usual staining, microscopic, and culturing techniques. It should include consideration of mycotic and parasitic infection."<sup>2</sup>

One cannot disagree seriously with the additional recommendation that emphasis be placed on those phases of special interest to pharmacists. However, the principles of the subject are the same for students from other professional or avocational groups so the first semester of the course may receive such special attention only at the discretion of the instructor. Similarly, there is much merit to the recommendation that the "laboratory exercises should constitute a significant part of the instruction. Their purpose is to lead to a better understanding of the basic phenomena of the behavior of organisms as offered in the didactic instruction. They should be designed to develop skill in techniques which are of special concern to the pharmacist, such as aseptic techniques and sterility testing. The exercises should also provide training in the basic microbiological techniques as exemplified by the isolation, maintenance in pure culture, and systematic study of various organisms. It is suggested that these

organisms should include the commonly observed pathogens as well as representative organisms which might be encountered as contaminants."<sup>2</sup> In acquiring the basic manipulations the pharmacist soon learns that nothing short of aseptic technique is essential to the study of microorganisms and that the habit, once formed, will be of continuing value to him in later professional activities. The handling of pharmaceutical products, the sterilization of materials and the need for sanitary practices will receive renewed emphasis in his thought and activity. Knowledge of the methods of assay, methods of diagnosis (serologically and culturally), methods for assessing the sanitary handling of water, milk and other foods will be an essential part of his understanding of microbiology if he would become competent in this field.

The extent of his achievement in the technical skills of microbiology must be appreciable if he is to take his place in hospital pharmacy. The adjustment of the scope of the course in microbiology to meet the need of such students is necessary but obviously is at the discretion of the instructor. Certainly the needs of the retail pharmacist and the potential research appointee must be met when developing the course in microbiology.

The scope of the course as finally presented will also be influenced by the hours available in the curriculum, the physical facilities, the previous training of the students in biology and chemistry, the year in which it is required, the integration of the course with those in pathogenic bacteriology or immunology or biological products, staff competence and aptitudes and methods, and finally administrative decision.

If six credit hours are available in the curriculum the scope and the content can be increased. Perhaps a two semester sequence could then be presented and the scope extended both as regards the microbic groups considered and the detail with which each is studied.

Enlarging the scope of the course could be accomplished by giving attention to the newer knowledge of sterilization, of official methods of testing for sterility, of immunology

and immunizing agents and allergens, of the testing of disinfectants and toxicity indices, and of the current methods of improved sanitation.

Whatever the extent of instruction, attention must be given to methodology. Didactic and laboratory instruction, when well integrated, can then become functional knowledge for the student. The rational, logical orientation of the student in the consideration of the major groups of microorganisms is obviously of great importance. We have found that relating the life processes of these forms to their natural habitat, and thus to their requirements if one would study them in the laboratory, offers an approach which is functional and therefore very interesting. The individualism of germs is immediately apparent and their practical importance to students of pharmacy is very quickly appreciated. In contrast to the chronological approach to the events in early microbiology, consideration of the habitat and metabolic pathways of germs offers a logical and a psychologically integrated introduction to the field. Interest so generated can be easily sustained providing the laboratory exercises and lecture topics are selected properly. Having grown the germs by appropriate methods, the study of them microscopically then follows as expected. When the cytology of germs is considered in the lecture, the basic techniques should be presented concurrently in the laboratory. The stronger courses in microbiology will be characterized by close harmony in the lecture and laboratory topical sequence.

Broad University policy also influences the scope of the course when pharmacists, of necessity, must take microbiology with students from other schools. Economic factors, physical facilities, and staff competence may dictate such an expediency. Each group of students in such a course might hope for greater emphasis for their special benefit, especially in the scope of topics considered and in the choice of laboratory exercises. Thus the instructional problem becomes complex and can be solved only on an individual basis.

Current laboratory manuals for microbiology reflect the very diverse interest of the authors and the wide variety of



exercises to interest the student. It would be impossible to present all of them in a semester but in everyone the scope of what is required contains the fundamentals, and a few exercises selected because of their special interest. This situation precludes further delineation of the scope of the course in microbiology since it will always be adjusted to a particular situation. The extent of consideration of the major microscopic groups is what will vary. The expectation would be that a balanced sequence of topics, logically integrated and psychologically focused, would be presented so that the graduate would acquire knowledge and techniques useful to him in his duties as a pharmacist.

Any degree of success in this regard will depend in large measure on the broad scope of the course, the student's vocabulary in the subject, his mobilization of his information and his capacity to reason in it. Thus one finds that the direct approach in lectures and in laboratory exercises compartmentalizes the field of knowledge for the pharmacist and fits the pattern of presentation to which he has become accustomed in the allied sciences of his curriculum. Formulae, and direct instruction appear to condition the student to expect similar methodology in microbiology.

An added instructional dividend could be realized if the scope were to include how microorganisms are now being used to study heredity, cancerous processes, vitamin requirements (and isolation) and the comparative biochemistry of life processes. Presenting challenging problems, such as the response of the host when booster shots are given, or the mechanism of microbial death in antibiotic therapy, are effective ways to broaden the scope of the course in microbiology and stimulate greater understanding.

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## **The Importance of a Knowledge of Microbiology to the Retail Pharmacist\***

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The retail pharmacist as a student receives instruction in microbiology, which covers much useful knowledge having a direct relation to medicine, public health, sanitation, to various industries and technological pursuits and even to household administration. The subject as presented includes certain aspects, which tend to widen his outlook upon a variety of human interests. With a working knowledge of microbiology, including health education and health care, the retail pharmacist, as is his privilege and duty, is in a better position to cooperate with all health agencies in the dissemination of reliable data concerning public health. As possessor of this knowledge, he always should be able to converse intelligently with members of the medical, dental and allied professions concerning problems in microbiology, as well as to answer questions asked by his lay customers. The retail pharmacist must recognize his mission and his privileged position in this great land of ours. He cannot and should not shirk his humanitarian obligations, especially as it concerns him and his customers. Each in his respective position can aid through his special mission in serving mankind as a member of the Health Professions; and united there can be built a common security in which justice and liberty are denied to none.

In the "Pharmaceutical Curriculum" by Blauch and Webster published in 1952, microbiology is listed as Part III under the Biological Sciences. It was my privilege to serve as one of the five members of the Consultative Committee, which assisted in the preparation of this Section. The five

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\*Presented before the Section of Teachers of the Biological Sciences at the 1954 meeting in Boston.

pages of comments covering the purposes and objectives, and the courses of instruction as suggested, should be consulted for details. These can be most helpful in also indicating how Microbiology can serve the Retail Pharmacist. For clarification, the following definition given on Page 118 of this publication will apply for my comments in this presentation. "Microbiology, as used in this report, is the study of microorganisms, including bacteria, molds, rickettsiae, viruses, and protozoa, as well as metazoa of medical importance".

It is difficult and perhaps impossible to have a hard and fast rule or draw a fine line indicating where microbiology alone can serve the retail pharmacist, without the efforts of those in other allied groups, such as the biochemist, organic chemist, pharmacologist, clinician and others. It is team work which has brought forth the modern materia medica; and the microbiologist is a member of this great team. At times he is the leader, or at least the most prominent member of the group, displaying his special skill. It is in these instances that microbiology exhibits the dominating influence; and it is these specific problems, especially as they concern the retail pharmacist, which I am considering at this time.

The practicing retail pharmacist controls in great measure the distribution of all drugs. His responsibilities and professional opportunities have increased. Today, more so than at any previous time in the history of pharmacy, the retail pharmacist must be able to interpret intelligently his services and the modern medicinal preparations he dispenses, interpret them both to the physician who prescribes them and if necessary, to the layman who uses them. This does not mean to diagnose and prescribe, but he must have sufficient training, so as to be familiar with the fundamental knowledge, concerning these drugs, and especially have the ability to assess the claims made for them.

Your attention, therefore, is directed to the importance of the retail pharmacist today who is concerned not only with compounding formulas and prescriptions, but who also is expected to have a knowledge of drugs such as: how they

are produced, the methods of assay, how they act, the dosage and methods of administration, the possible harmful affects resulting from their use, their stability, how to preserve them, and the increased problems of incompatibilities when in combination with other medicaments. Let us briefly consider specific problems in microbiology, which are the concern of the retail pharmacist.

### **Biological Products**

Biological Products comprise the various vaccines (bacterial, Rickettsial and viral), antitoxins, antimicrobial sera, immunizing toxins, toxoids, other antigens and related products, human blood and blood fractions, used for the diagnosis, prophylaxis and treatment of disease. Each has special characteristics as to production, preservation, stability, dating periods, potency, assay, dosage, method of use, etc. These preparations are quite complex. Though in the main, they are neither physically nor chemically pure products, they are more specific in their action than most chemical drugs. Microbiology plays the leading role in developing and producing these biological products for medical use. To achieve all objectives, chemistry, pharmacology and at times other allied branches of science, but always clinical medicine provide essential data to make available effective biologicals. The latter in many instances are dispensed by the practicing retail pharmacist, who must provide the public at the request of the physician with the proper biological product and always one of good quality. For efficient handling and distribution, it behooves the pharmacist to familiarize himself with all aspects of manufacture, assay, safety tests, preservation, expiration dates, dosage, how administered, usefulness and possible harmful effects. In rural areas, the retail pharmacist in most instances has not taken full advantage of serving as the distributor of veterinary biological products as well as other medicinals for veterinary use, in which microbiological knowledge is essential.

### Anti-Infectives

Drugs employed in the chemotherapy of infections fall into two large groups: the antiseptics which act locally and the anti-infectives for internal administration. Notable additions have been made to both groups within the past one or two decades. The increasing use of disinfectants to kill infectious microorganisms on inanimate objects is known to all. The evaluation of these products presents special problems and the microbiologist is called upon frequently to solve them.

More frequently, however, we find the practicing retail pharmacist as an adviser on drugs, called upon both by the medical profession and the layman to indicate the legal (wherever the definition of a term is legalized) or trade meaning of such terms as antiseptic, bactericide, germicide, fungicide, bacteriostatic agent, fungistatic agent, disinfectant, sanitizer, virucide, preservative and the like. It is a common occurrence for the pharmacist to be called upon to interpret the label or labeling copy of these products either by physicians, other professional associates and even laymen, or to indicate what is meant by a phenol coefficient, or drug fastness, or even explain some of the test methods (*in vitro* and *in vivo*) as given in the literature. Data may indicate that the marketed preparation is effective only for gram-positive bacteria or specific micorganisms may be mentioned. The pharmacist dispenses daily in different formulations as powders, liquids, ointments and suppositories, many different anti-infectives (internal and external), disinfectants, fungicides, protozoacides, insecticides and preparations specific in their action for tubercle bacilli, for species of monilia and trichomonas, for malarial parasites, etc. He must therefore have the pertinent information or certainly know where to get it. Much of the data covering the most important facts relating to antimicrobial agents generally, can be obtained from a knowledge of microbiology.

### Antibiotics

In the case of Antibiotics as with Biological Products, the microbiologist plays the leading role in the production of

these substances. The assay method is one which is frequently the concern of the microbiologist, as are the *in vitro* tests for their evaluation. It, of course, is true that coordinated studies by many different investigators are necessary before the final purified antibiotic is made available for its specific use. However, the contribution by microbiology is the one which is more marked. What has been said concerning the practicing retail pharmacist's role when dispensing anti-infectives, applies here as well.

#### **Sterile Medicaments**

The retail pharmacist frequently is called upon to dispense sterile preparations. Most of the latter are products for parenteral administration and are available in ampuls, cartridges, multiple-dose vials or in bulk solutions. Occasionally, it may be a sterile preparation for local or topical application, as sterile powders for wounds, sterile ophthalmic solutions, sterile ointments and dressings, sterile solutions or suspensions for irrigation, etc. Microbiology can supply much valuable data concerning the conditions under which these products are prepared, sterilized and marketed, and the procedure for testing their sterility and determining, wherever applicable, whether they are pyrogen-free. Sterile products representing a modern form of dispensing drugs are widely used today. The retail pharmacist must be familiar with the many techniques of sterilization and aseptic preparation and the method of testing for sterility and for detecting the presence or absence of pyrogens, to justify the distribution of these preparations by him. He must frequently be prepared to answer questions of a general nature concerning chemical disinfection, fumigation, pasteurization and other heat sterilization techniques as well as sterilizing procedures by ionizing radiations.

#### **Microbiological Assays**

Sensitive microbiological methods and tests have made possible the detection and isolation of various medicaments. As important, however, is the fact, that microbiological procedures have been and are used with remarkable accuracy for determining the potency of many of the vitamins of the



B-complex group, almost a dozen of different amino acids and even for the assay of potassium. The actual assay methods constitute interesting bacteriologic techniques, made possible by studies that reveal specific growth factors for specific organisms. These procedures require a knowledge of microbiology. However, biochemical and physical chemical data are also necessary for a more complete interpretation of the results obtained. Certainly the retail pharmacist should have at least a knowledge of the principles underlying these procedures.

### Other Considerations

Some retail pharmacists are prepared to dispense staining solutions, culture media and other diagnostic reagents used by the medical profession. The formulas of many of the foregoing are found in the National Formulary. Most of them were originally prepared as approved by a committee of more than 90 prominent clinical laboratory workers from all over the country, a committee of which I had the privilege of serving as chairman.

*Acidophilus* milk is sold by some retail pharmacists. Surely they should know how this product is prepared and how it acts when used as a therapeutic agent. In speaking of the *Lactobacillus acidophilus*, much has been and still is written concerning its relationship with dental caries. A strain of this same species is found in the vaginal tract as a normal inhabitant, and is frequently referred to as the Doederlein bacillus. The literature of all vaginal preparations, creams, suppositories, tablets and the like mention this organism, and on occasion, the pharmacist is asked to supply information concerning its presence and especially its significance in these body excretions and secretions.

The retail pharmacist should know even if only in a general way the important microbiological processes used in industry, especially for the preparation of many useful products. Acetic acid, lactic acid, citric acid, gluconic acid, fumaric acid and their salts, ethyl alcohol, acetone, butyl alcohol, riboflavin (vitamin B<sub>2</sub>) and cyanocobalamin (vitamin B<sub>12</sub>) are some of the more important substances with which

he comes in contact, that are produced microbiologically.

At times, a customer will ask the retail pharmacist how to collect a sample of water for shipment to the laboratory where its fitness for human consumption is to be determined. The request may be made concerning the proper collection of sputum or urine for a routine examination. It is desirable that the retail pharmacist be prepared to answer questions concerning the collection of body fluids for microbiological examination and of water, milk and foodstuffs for sanitary examinations.

#### **Sanitary Control**

Microbiological methods have been significant in determining the sanitary quality of raw materials, sanitation during manufacturing procedures and the sanitary quality of marketed preparations. Total bacterial counts, examinations for the presence of coliform bacteria, molds and yeasts, rodent contamination, insect parts and the like are aids used as indices of proper sanitary supervision and for an assurance that the preparation is satisfactory from a sanitary viewpoint. Ultraviolet light, aerosol mists and other sanitization procedures are in use. The retail pharmacist should recognize that here too microbiology can and does serve him constantly, even if only in the fact that he is more apt to become sanitation conscious. The result will be cleanliness and proper sanitary conditions in his own immediate surroundings.

#### **Conclusion**

It is impossible to indicate, let alone give in detail, the many contributions by microbiology in helping the retail pharmacist in his daily routine. This brief presentation gives only in part the role microbiology plays today in constantly advancing modern pharmaceutical practice. Microbiology has a right to expect that the practicing retail pharmacist will recognize his responsibility and familiarize himself with that which is being offered. In the final analysis, microbiology can also be of considerable aid in developing a smooth-functioning relationship between physicians, dentists, nurses, pharmacists and all health workers, resulting in more efficient health service teams, which will be able to make better contributions to community health.

## **The National Pharmaceutical Council, Inc.**

**NEWELL STEWART**  
**Executive Vice-President NPC**

There are many problems involving all segments of the pharmaceutical profession and an increasing demand for their settlement. Recognizing this fact, twelve leading drug manufacturers, marketing principally prescription specialties, formed in December 1953 the National Pharmaceutical Council, Inc. These twelve pioneers in this endeavor were:

Abbott Laboratories.  
Ciba Pharmaceutical Products, Inc.  
Hoffmann-LaRoche, Inc.  
Lederle Laboratories Division (American Cyanamid Co.).  
McNeil Laboratories.  
The Wm. S. Merrell Company.  
Chas. Pfizer & Company, Inc. (J. B. Roerig & Co.).  
G. D. Searle & Company.  
Smith, Kline & French Laboratories.  
E. R. Squibb & Sons (Division of Mathieson Chemical Corp.).  
The Upjohn Company.  
Winthrop-Stearns, Inc.

Since that time the Council has added to its membership:

American Home Products Co.  
The Ames Company, Inc.  
Mead Johnson Company.  
Warner-Chilcott Laboratories.  
White Laboratories, Inc.

The President of the Council is Doctor Theodore Klumpp who is also President of Winthrop-Stearns, Inc.

The Council plans to formulate procedures which may solve some of these problems at all levels of the industry and the purposes of the Council can be summarized as follows:

- (1) To benefit public interest by promoting the highest professional standards in the manufacture, distribution and dispensing of prescription medication and other pharmaceutical products;
- (2) To benefit the pharmaceutical industry by promoting public relations programs on behalf of pharmacists and others in the industry;
- (3) To promote the interests of the public, physicians, pharmacists, and others in the pharmaceutical industry by encouraging the highest standards of ethics and integrity in the manufacture, distribution and dispensing of prescription medication and other pharmaceutical products;
- (4) To collect and disseminate information concerning laws, regulations and governmental agencies dealing with the manufacture and distribution of prescription medication and other pharmaceutical products as a contribution to the better understanding thereof in the public interest.

As a careful reading of the preceding purposes will suggest, this is a very broad and ambitious program intended to benefit every group in pharmacy. However, at the same time it must be emphasized that every segment of the pharmaceutical industry exists primarily to serve the public interest and the public is concerned at first hand with the cost of medicines while assuming in most instances that the medication delivered is what the doctor ordered and is of the highest quality.

This immediately focuses attention upon the first real problem to be attacked by the Council, which is "substitution". While all groups in organized pharmacy have condemned the practice, there is too little being done about it because Boards of Pharmacy in too many States either are of the opinion they do not have the necessary legal authority or do not have the "know-how" to proceed in a problem of this nature. The Council feels that Boards of Pharmacy are anxious to clear up such a pharmaceutical cancer and plan to offer guidance to Boards in this matter.

Improving public relations is a second project being developed simultaneously by the Council. Every pharmacy, every drug manufacturer and wholesaler, and every physician in the country has received a copy of a booklet bearing the title—"I Hate To Buy Drugs, but—". It has been written by science writer Donald Cooley and discusses the costs of medication, emphasizing that the public gets its money's worth when it buys prescriptions today. The booklet is written in a down-to-earth convincing manner and should stimulate a great deal of understanding upon the part of that segment of the public who is so prone to shout—"I have been robbed"—every time a prescription is filled.

This will only be the first of a number of plans being considered to improve the public relations of the practicing pharmacists. Another project under study is the preparation of a manual for use by pharmaceutical organizations in building interprofessional relations with medical groups.

To coordinate all of these projects, the Council has opened a New York office at 610 Fifth Avenue and has engaged Newell Stewart, the President of the American Pharmaceutical Association, and former Secretary of the Arizona Board of Pharmacy and Arizona Pharmaceutical Association, as its Executive Vice-President, and Wilbur E. Powers, Secretary of the New Jersey Board of Pharmacy—both to devote their full time to the Council.

In addition, to assist the officers and committees of the Council in rendering these services to the profession, an advisory group has been created consisting of representatives from the fields of pharmacy, science and medicine of which Dr. John W. Dargavel, Secretary of the NARD, is Chairman. This group met for the first time in November to organize and review the public relations plans in the making.

The Council is actively seeking the cooperation of every group representing the pharmaceutical industry to achieve the purposes for which this group was formulated to the betterment of both the industry and the public it serves.

## **Honor System in Virginia Colleges\***

**M. L. NEUROTH**

**Medical College of Virginia School of Pharmacy**

### **Introduction**

Dr. R. A. Lyman, editor of the *Journal of the American Association of Colleges of Pharmacy*, directed my attention to the honor system as it functions at the Medical College of Virginia. He stated further that one of the most important problems in any profession is personal and professional integrity. Dr. Lyman also called attention to the results of a Commonwealth study on traits of successful pharmacists as recorded in *Basic Material for a Pharmaceutical Curriculum* by W. W. Charters. In this report the number one attribute of a successful pharmacist is recorded as accuracy, and honesty is rated fourth; dependability, sixth. Dr. Lyman then posed a significant question concerning the effect of the honor system. He asks "What effect has the honor system on character building within the student body?"

A bit of confused thinking is exhibited by the difference of opinion as to whether a student dishonest in getting grades would be dishonest at the cash register. Some evidently think there is a different standard of morals for grades and for money. Loyalty and confidence may be still other characteristics that may be either effected or developed through contact with an honor system.

### **Background Information**

In order to develop an over-all impression of the effect of the honor system in the areas mentioned; namely, accuracy, dependability and honesty and character building, the writer went directly to the students themselves. Each class, freshmen through seniors, has two honor council representatives elected by the students. Violations of the honor code are taken to these persons who are responsible for invoking the regulations and seeing that justice is met out to all con-

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\*A contribution of the Committee on Problems and Plans.



cerned. The honor council representative was asked to discuss with the class the factors mentioned above, then write a paper expressing the feeling of his group. Two such reports are used as background information. In addition, the *News Leader*, a Richmond, Virginia, evening newspaper, recently ran a series of five articles on the honor system as it operates in the Virginia colleges. Several Virginia colleges not operating under an honor code as such answered a questionnaire in which their views were expressed with respect to honor systems and how in those institutions control was exercised over cheating, lying and other forms of indiscretion. These articles serve as a basis for further information concerning the effectiveness and value of honor systems in institutions of higher learning in the State of Virginia that operate under an honor system, all of about the same design. They are listed as follows: The University of Richmond, Mary Washington College of the University of Virginia, Washington and Lee University, Madison College, Hampden-Sydney College, Longwood College, Hollins College, Emory and Henry College, Randolph-Macon Woman's College, Richmond Professional Institute, The University of Virginia, The Medical College of Virginia, Virginia Polytechnic Institute, The College of William and Mary, Randolph-Macon College, Roanoke College and Virginia Military Institute. Institutions among those who answered the *News Leader* questionnaire and that operate without honor systems are: Virginia Union University, The General Assembly's Training School for Lay Workers, Shenandoah College and Saint Paul's Polytechnic Institute.

The honor code was established at the College of William and Mary in 1779. "Since its founding nearly 125 years ago, the University of Richmond has recognized the individual, the sacredness of honor and integrity." This is a statement of the President, Dr. George M. Modlin. President Modlin said, "The honor system operating today in all divisions of the University with only slight variations in each, is an effective instrument in the development of character." The honor system at the University of Richmond is now in its 111th year.

The presidents of twenty-seven institutions of higher learning were sent questionnaires concerning the honor system. Twenty-two of them answered, either personally or through a representative or student. Eighteen of those answering had honor systems. Those without a specific honor code said they had rules of student justice in their schools.

#### **Basic Organization**

The schools of medicine, dentistry, nursing and pharmacy at the Medical College of Virginia have honor councils presided over by the president of the respective schools. A temporary honor council may be created by special election within the school which because of size has no council, but in a specific case may warrant one. Immediately upon suspicion of a breach of the honor system, the accuser with one or more witnesses secretly contacts the accused and obtains an explanation. The accused may elect to voluntarily leave school or stand trial. In the event of trial, both sides are represented by council chosen from the student body. There is a judge, jury and prosecuting attorney. The accused may say what he chooses in his own defense. The secretaries of the senior classes act as clerks for their respective councils, and records of the trial are kept in a secure manner. Action taken by the honor council is final. There is no appeal from a decision. There are two charges that may cause a student to appear before the honor council; namely, cheating and indiscretion (lying, violation of athletic code, etc.). Decisions of the honor council must be unanimous. This is not true in some schools.

#### **Honor Plan Praised**

A review of the comments from some of the college administrators and students may help to present the effectiveness of the honor system in Virginia. "I would personally not wish to work in an institution where the honor system did not prevail", wrote Mrs. Thomas H. Grafton, dean of Mary Baldwin College. Mary Ann Taylor of Omar, West Virginia, is quoted as saying, "We like a system that appeals to the best in us. When you are trusted, how can you help being trustworthy?".

A number of college administrators and students let it be known that no honor system could be effective to the letter. There would always be violations of the code, but there is need to give some students an opportunity to live under such regulations.

Thomas R. Brady, president of the Shenandoah Conservatory of Music in Dayton, said, "Friendship and personal loyalties in the small schools make the honor system ineffective." This school has no honor system; however, they do have a student government and student offenses are first handled through that group.

The General Assembly's Training School for Lay Workers, a Presbyterian Church school in Richmond, Virginia, has no "defined honor system." Henry Wade DuBose, president, wrote, "One might say that it is assumed the life of the institution is pitched on a plane of mutual confidence and understanding." Again, the school does have a student government under the administration of a student council elected by the students.

New students in colleges with honor systems are required to sign a pledge to support the code which goes into the records and is effective throughout the four year stay at that institution for that particular individual. The student is also required to sign a pledge at the completion of each examination which reads, "I have neither given nor received aid on this examination."

Dean of students, Elizabeth Parker, of Mary Baldwin College, Staunton, Virginia, said, "With many a student the maintaining of this code achieves perfection; with others, attainment is of a lesser degree. With the large majority, however, every effort is made to live up to the responsibility of such a system." H. W. Kendall, of Emory and Henry College, said, "I am firmly convinced that our honor system is effective." Frank J. Gilliam, dean of students at Washington and Lee University, said that for his particular campus the system works with maximum success. "No honor system operates with 100 per cent effectiveness." "The honor system is Randolph-Macon to me, and I say it does work", said the

president of the student government at that school. So go the comments from those school administrators and students both with and without honor systems.

#### **M.C.V. Student Reaction**

Mr. Clyde Lawhorne, a junior student in the school of pharmacy at the Medical College of Virginia, wrote, "The honor system as we have it at M.C.V. is one of the most important character builders that we have in our College today." He also stated that the honor system encouraged accuracy, cleanliness and confidence. It is his conviction that by observing the rules of the honor code, one gets a measure of confidence in what he does. In conclusion, Mr. Lawhorne said that a person who obeys the laws of an honor system can be depended upon to be a real asset to the community in which he serves. Quoting from a letter by Mr. E. C. Kohne, a senior representative on the honor council at M.C.V., "Hand in hand go honesty and dependability." Mr. Kohne further states, "The honor system builds character; a student who has been under the honor system is more likely to turn in an honest day's work and an accurate piece of work and to be honest with those he comes in contact with." This commentator also believes that a person who has been dishonest in obtaining grades will be dishonest at the cash register. He feels there cannot be different standards toward grades and money. Finally, the statement is made that the honor system, consciously or unconsciously, lends itself to stimulating efficiency, courtesy and pleasantness. These are the statements of students in the school of pharmacy here at the Medical College of Virginia, after consultation with members of their class and from their experience as class representatives on the honor council.

#### **Indoctrination**

A thorough indoctrination is essential. The effectiveness of an honor system is related to the method of indoctrination. New students must be made fully aware of the provisions of the honor code under which they must work, but more important is that these neophytes must be imbued with the spirit and intent of an honor system.

A second factor in establishing the effectiveness of an honor system concerns the need for full cooperation between the students and faculty. Success of enforcement of the code depends upon those who are aware of the infractions. The accused must be confronted and the act denied or admitted. It is recognized that one having knowledge of an infraction and who does not take action is equally guilty of a violation of the honor code. The honor code at M.C.V. states, "The cooperation of the faculty is essential in carrying out the spirit of the honor system." It is further stated in the code that inactivity of the honor system is not due entirely to the students, but much of the responsibility rests with the faculty to report known violations and to aid in impressing the principles of the honor code upon members of the student body.

The individual is made responsible for the maintenance of the principles of the honor code. It is a system of self-government whereby the students eliminate from their own group those who fail to conduct themselves within the bounds of the pledge they take. Each new student is required to present to the proper officer a signed copy of the following pledge, "I, the undersigned, have read the honor code of the student body of the Medical College of Virginia. I understand what is expected of me as a student of that institution, and I hereby pledge my word of honor that I will support the honor system in all of its details." As has been stated before, the core of the system in any institution is the individual and personal honesty and integrity of the individual. There always will be violations from time to time, and it requires courage to accuse and to convict an offender. Recently the writer has been a part of a trial in which two convictions resulted. In another instance there was a voluntary withdrawal. A son of the writer witnessed a so-called "drumming-out" at Virginia Polytechnic Institute. Here there is an open ceremony at which the entire military corps is present. The charges are read out, taps are sounded, and the entire procedure is an occasion of deep solemnity. Needless to say, the honor system as it operates at the Virginia Polytechnic Institute is deeply regarded by all students who enroll.

It is the conviction of most of those persons associated in any capacity with an institution of higher learning which operates with an honor system, that some violations do occur. Some go unreported, but by and large the value of the sense of responsibility it places upon the student far outweighs the weakness of the system. There are those who feel that there may be fewer cases of academic dishonesty and violation of the rules and regulations of an institution when students live under an honor system than when there is no such system. Also, it may be well to note that those who operate under and have a part in the enforcement of an honor system are ever ready to admit that it is not a perfect system. Honor systems do not stop cheating, but they do prevent it and at the same time there is ample reason to believe that experience in college under an honor code may help to strengthen character, encourage accuracy and build dependability. Full appreciation of the value and effect of an honor system upon the lives and habits of students is not fully appreciated until one has actually worked with students and administration officials within the framework of an honor system. Mr. James P. Baker, Judge Cadet of the Honor Court at the Virginia Polytechnic Institute said, "There is nothing at V.P.I. of which we are prouder than our honor system."

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## **A Program for Stimulating Qualified Students into Graduate Work in Pharmacology\***

**DAVID H. TEDESCHI and EWART A. SWINYARD**  
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Considerable progress has been made toward improving the quality of instruction in the five basic areas which comprise the professional curriculum in most colleges of pharmacy. How much of this improvement is attributable to the annual Teachers' Seminars, sponsored by the American Asso-

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\*A contribution of the Problems and Plans Committee.



ciation of Colleges of Pharmacy and the American Foundation for Pharmaceutical Education, and how much is attributable to improved graduate instruction is difficult to ascertain. Irrespective of the cause, it is important to note that, in general, the quality of instruction in colleges of pharmacy is at the highest level yet attained.

During the last 15 years, a diversity of factors has evoked changes in the pharmaceutical curriculum, one of which has exerted a profound influence on pharmaceutical education: the trend toward the use of prefabricated pharmaceuticals. Its effect has been a change in the emphasis placed on various pharmaceutical disciplines; the most marked of which has stressed the fundamental importance of pharmacology in pharmaceutical education. The papers by Dille<sup>1</sup>, Deno<sup>2</sup>, and King<sup>3</sup> not only indicate the increased attention given to pharmacology, but also accent the need for qualified teachers in this area of instruction.

Fundamental to the improvement of the instructional program in pharmacology is an administration and faculty convinced of the vital position pharmacology holds in modern pharmaceutical education. Indeed, the instructor charged with the responsibility of teaching this discipline should not only impart the enthusiasm he has for the subject through his lectures but also by pursuing research in his chosen field. The administration should encourage the instructor in this area to vitalize his instructional program and should make it possible for him to present the results of his research at national meetings, both pharmacological and pharmaceutical. Improvement in the quality of personnel responsible for teaching pharmacology in colleges of pharmacy is intimately correlated with the character of graduate instruction and the quality of students directed into this field. A previous publication<sup>4</sup> cited the obligations assumed by colleges of pharmacy offering graduate work in pharmacology and emphasized the importance of a competent faculty in this and supporting departments. In addition, the desirable qualifications for students contemplating graduate work have been reviewed<sup>4, 5</sup>. It is the purpose of this paper to outline a pro-

gram by which properly qualified students can be recognized and guided into graduate work in pharmacology.

Because pharmacology is usually taught during the senior year and, in general, the student comes in contact with other pharmaceutical disciplines before pharmacology, a successful recruitment program depends upon recognizing potential graduate students from members of the freshman and sophomore classes. It goes without saying that the time of the Professor of Pharmacology is so well-taken up with his duties as a teacher, as a researcher, and as a member of the faculty of an instructional institution, that he has little time to spend with neophyte pharmacy students in an attempt to uncover likely prospects. Thus, he must rely upon others to make his preliminary selection, a practice that is in reality not so dangerous as it would appear at first glance.

At least two "others" enter the picture here: the student counsellor and the professor or professors in charge of the earlier courses in pharmacy. The counsellor has at his fingertips lists of transferred credits, accounts of courses completed and the grades made in them, scores from the college entrance examinations, and results of the aptitude test battery; he should be able to predict fairly confidently the chances of success of a prospective student as far as the records can be interpreted. The professors in charge of the earlier courses are in an ideal position to observe the application of the student to his lecture studies and, particularly important, to his conduct in the laboratory, his facility with the development of technics, and disability to obtain and interpret simple data and to write up results. A high level of cooperation between the Professor of Pharmacology, the counsellor, and the professors in contact with the student at the outset of his academic professional career and an exchange of information and ideas must be maintained at all times. By observing the interest and attention of these students and by discussing their academic records and attitudes with members of the faculty handling the precedent classes, it is possible to distinguish at an early period those students with a true interest in learn-

ing and in science as opposed to those "seeking a degree and qualifying for a profession".

When a student is discovered whose general ability and aptitude indicate that he is capable of pursuing graduate study, he is encouraged to participate in some phase of research. At first this merely consists of a series of conferences with the instructor during which the research program currently in progress is explained to the student and his attention directed to some of the specific questions involved and to selected reading material covering basic work previously done. In addition, the student is engaged as a research assistant and assigned some minor phase of the overall program. A modest stipend is paid the student for this work in order to encourage him to direct his free time to research activities rather than to outside employment unrelated to future interests.

The instructor makes every effort to see that interest in the prospective graduate student and his research program is continued as the student gains professional stature. During the junior year the student is usually assigned a more challenging research problem, is kept well-informed on all facets of the program and just how his contribution fits into the overall understanding of the major objectives of the investigation.

By the time the student reaches the senior year in the pharmacy curriculum and is ready for the basic course in pharmacology he has acquired an active interest in this subject and a mastery of certain elementary pharmacological technics. His interest in the subject usually inspires him into supplementary reading which provokes questions and raises problems which require clarification. This provides many opportunities for the instructor to bring out in private discussion details which cannot be presented in a general lecture. His experience with pharmacological technics will give him some contact in student-teacher relationships. Much valuable experience is gained by the student assisting the instructor in setting up some of the experiments for the student laboratory and by taking charge of a group experiment. In-

sofar as his research background is concerned, he is now ready for a research problem of his own. The problem selected is straight forward so that by the end of the senior year he has usually completed the project and has the pleasure of seeing a manuscript in press. During his senior year, he is invited to attend journal clubs and research seminars, is given a selected list of journals to review regularly and is encouraged to make library work a routine part of his weekly activities. It should be emphasized that the prospective graduate student may still be lost to pharmacology if the instructor does not present really stimulating lectures and provide worthwhile laboratory sections in the required course in pharmacology. The ways and means whereby these two objectives are accomplished are specific problems in themselves and cannot be discussed here. Nevertheless, it is worthwhile to point out in passing that unless the instructor in pharmacology displays visible evidence of his enthusiasm for the profession of his choice, it is inconceivable that he can transmit the incentive for a student to follow in his footsteps.

It is realized that a recruitment program such as that outlined above cannot involve more than one or two students at each academic level. The total number that can be encouraged in this way is limited by the number on the pharmacology staff and the funds available for research. However, if every instructor in pharmacology were able to stimulate one or two students into graduate work each year the personnel deficiencies experienced in this area would soon disappear. It has been the writers' experience that the program outlined above can effectively stimulate students into a desire for further training in pharmacology. However, merely encouraging students to do graduate work will not in itself assure pharmaceutical education a constant supply of well-trained pharmacologists. If a graduate student is well-trained and imbued with the desire to do research and participate on an equal level with other pharmacologists irrespective of their affiliation, he will frequently seek employment other than pharmaceutical education. The principal reason for this is

the failure of pharmaceutical administrators to encourage and provide adequate time for original investigation. To retain these men in pharmacy, administrators must support them with adequate funds, facilities, and time to do research. In addition, they should provide the means and the time for members of their faculty to attend professional meetings and present the results of their scientific investigations. Until administrators in pharmaceutical education accept this problem and make the position of Professor of Pharmacology as attractive as it is in medical and dental schools, and until they demand the same caliber of instruction as do these other schools, the students we have so diligently stimulated into graduate work in pharmacology will be lost to other elements of the medical confraternity.

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## Graduate Students in Pharmacy\*

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Without indulging in reminiscence, which usually is distorted by prejudice, it can truly be said that graduate students in pharmacy are considerably different from what they were twenty years ago. This difference is not limited to their academic status, but it transcends their economic and social being as well.

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\*A Contribution of the Problems and Plans Committee

Because of a broad training in the biological sciences, greater concentration on proprietary products and knowledge gained from business courses, graduates who complete the modern pharmacy curriculum are far better prepared to practice their profession than were their predecessors. To be sure, this preparation also has great value for one who engages in graduate study. However, in acquiring this training, certain fundamentals are neglected, thus extending the time devoted to graduate study and making the entire program more difficult to co-ordinate. One of the more common deficiencies to be found among beginning graduate students is in the mathematics prerequisite to physical chemistry. The significance of this cannot be regarded lightly. Not too many years ago, physical chemistry was a course to be taken by chemistry majors only, however the picture has changed to the point where the course is now claimed to be indispensable for advanced work in any of the biological sciences as well as for the chemistry and applied chemistry areas. The current style of teaching general and beginning organic chemistry places undue emphasis on theoretical and structural relationships while the student suffers from lack of familiarity with the simple but important properties of substances and with the reactions which they will undergo because of their structures. The consolidation of qualitative chemistry with general chemistry and the offering of the qualitative aspects on a semi micro scale has deprived the student of practice in numerous laboratory techniques which are of great importance to both undergraduate and graduate students in pharmacy. The same can be said for the de-emphasis of gravimetric techniques in quantitative analysis. It is true that gravimetric techniques have all but disappeared from our laboratory guides, however the fact remains that the analytical balance is one of the basic, if not *the* basic, tool in any research laboratory.

Graduate students in all areas are somewhat of a mercenary lot, and those in pharmacy are no exception. This is not a criticism, but a statement of fact, for no man can be-



grudge another the opportunity of earning a living. However, the fact remains that the graduate students are influenced by money, in a variety of ways. In consideration of the current wage scale for registered pharmacists, no one can challenge the sincerity of the students who undertake graduate work. Somewhere along the line, they were motivated by one or several of their instructors and inspired to learn more, as well as to contribute their share to the existing knowledge of the welfare of mankind. Noble as their intentions may be, finances enter into the picture to the point where they may determine whether or not a student undertakes graduate work at all or whether he attends one school or another. Many of our present day graduate students are veterans who are married and have dependents. Among them we commonly find our most capable and enthusiastic students. Among them are our most worthy candidates for higher degrees, for the teaching profession and for responsible positions in industry. They are alert, they have poise and character and, above all, ambition. Among them we find those who deserve every bit of assistance which we can afford. That which we do give them in the form of fellowships and assistantships is inadequate and they frequently must supplement their incomes by taking on additional work in order to provide their families with the bare essentials of living. For them the road is long and difficult, but they have the tenacity to see it through to a successful conclusion.

Notwithstanding the manifold problems of the times in which they live, graduate students in pharmacy are now better and more numerous than they ever have been. This speaks well for the undergraduate teachers who imbue them with sufficient enthusiasm to endure the long and sometimes tortuous route which leads to the goal which must have been described and dramatized in the undergraduate classroom and laboratory. The logical conclusion is that the outlook for American Pharmacy is brighter than ever because of the sincerity and perseverance of its graduate students.

## **Forum on Teachers' Seminars American Association of Colleges of Pharmacy**

**Edited by RICHARD A. DENO, Secretary, AACP**

A two and one-half hour Forum on Teachers' Seminars was held during the fifty-fifth annual meeting of the Association, at Boston, Massachusetts, on August 23, 1954. The objectives of the Forum were to review briefly the six Seminars held to date, and to give delegates and representatives opportunity to express freely their views on the nature of future Seminars. Both of these objectives were fulfilled during the Forum.

Brief formal presentations were presented on the Origins, by President-Elect Joseph B. Burt, who helped plan all of the Seminars held prior to 1954; on each of the Seminars held to date, by the respective Chairmen; and on Support by the American Foundation for Pharmaceutical Education, for Secretary W. Paul Briggs. A thorough discussion from the floor of Future Seminars followed. Included here are each of the formal presentations, preceded by the names of members of the Committees for the respective Seminars (in parentheses following the names of the Chairmen), and finally, a brief summary of the discussion.

### **Origins: Joseph B. Burt**

The need and value of an exchange of ideas and experiences among teachers in the various subject matter fields associated with pharmaceutical education has long been recognized. Even before the organization of the Conference of Teachers, which sponsors meetings of the Section of Teachers as a part of the program of the annual meetings of this Association, informal discussions of teaching and teaching methods had arisen spontaneously; in view of the classic definition of the professor as "one who thinks otherwise," this could scarcely have been avoided. The organization of the Conference of Teachers represents an effort on the part

of the Association to provide forums where teaching and teaching methods could be discussed.

The annual district meetings of the Boards and Colleges of Pharmacy have also provided, in each of the eight districts, further opportunities for the exchange of ideas among teachers.

These sessions were inadequate, however, to meet the need because of the limited time which could be made available for the purpose. There was general recognition of the fact that seminars for teachers in specific fields of instruction would be extremely valuable; and that they were, in fact, essential if the level of instruction in our schools and colleges of pharmacy was to be raised. It was not surprising that the Committee on The Pharmaceutical Survey, whose "Findings and Recommendations" was published in the fall of 1948, should make a specific reference to the need for "summer seminars for teachers of pharmaceutical subjects" and recommend that the planning of such a program receive "prompt attention." This served to focus attention upon a need which had already been recognized by many teachers of pharmaceutical subjects. However, it is doubtful if the teaching seminars could have been established as early as they were (1949) if this recommendation had not been made by the Committee on The Pharmaceutical Survey and if the American Foundation for Pharmaceutical Education had not made the funds available to support the first and the succeeding seminars.

The record shows that the first recommendation for a Teachers' Seminar was made as follows by President A. H. Uhl, in his Presidential report at the San Francisco meeting in 1948:

"I recommend that the Executive Committee study the question of teaching seminars and cooperate with The Pharmaceutical Survey in developing a program to be put into effect, if at all possible, during 1949."

It is true that the "Findings and Recommendations" of The Pharmaceutical Survey did not appear until about two months after the San Francisco meeting; however, the specific recommendations concerning teachers' seminars had been presented to the American Association of Colleges of Phar-

macy (and to the American Foundation of Pharmaceutical Education) prior to the San Francisco meeting by the Director of The Survey.

The following statement of the problem appears on page 22 of "Findings and Recommendations":

"It is self-evident that the effectiveness of the education and training for the profession of pharmacy is determined chiefly by those who teach. The evidence is clear. An undue proportion of existing teaching staffs is lacking in the thorough scientific preparation that is essential if the training for the profession of pharmacy is to be maintained on a level comparable to other professions. Approximately 45 per cent of those of professorial rank have only the master's degree or less. Furthermore, there are no available trained reserves from which to meet the immediate teaching needs due to the greatly enlarged enrollment of students. On the basis of reports made by 54 institutions, 99 teachers were needed in October, 1947. These institutions estimated that an additional 152 members of the teaching staff would be required during the coming three years. Under present conditions too many part-time teachers are being utilized."

It should be noted that the situation described above represents that which existed in 1946-47. Rather remarkable changes have been made since then, particularly in the educational qualifications of staff members of our schools and colleges. The number of men with advanced degrees now holding teaching positions on our staffs is truly amazing when it is considered that this change has been accomplished during the past seven years.

The following specific recommendation of The Pharmaceutical Survey is found on page 23 of the "Findings and Recommendations":

"It is recommended that the proposal for the conduct of summer seminars for teachers of pharmaceutical subjects, already presented by the Director of The Survey to the American Association of Colleges of Pharmacy and to the American Foundation for Pharmaceutical Education, receive the prompt attention of these organizations and be put into operation beginning with the summer of 1949. The primary purpose of these seminars is that of providing needed opportunity for the members of the teaching staffs, and for graduate students to come into fruitful contact and to keep pace with progressive content and methods of pharmaceutical teaching."

The question of teachers' seminars was considered by the Executive Committee at its sessions held in San Francisco. The minutes of the first session contain this notation:

"Pharmaceutical seminars were discussed in some detail and placed on the agenda for further discussion at the next session."

The minutes of the second session include the following:

"It was moved by Johnson, seconded by Burt, that a Seminar in Pharmacy be held under the auspices of the American Association of Colleges of Pharmacy provided the necessary financial assistance can be obtained.

"On motion by Burt, seconded by Johnson, it was moved that the chairman appoint a committee of three to work out the details and plans for a Seminar in Pharmacy for the coming summer."

Chairman Christensen appointed as members of this Committee A. H. Uhl, Chairman, J. B. Burt and L. C. Zopf.

The record further shows that in the third session (first of the reorganized Committee for which your speaker served as Chairman):

"Dr. E. L. Newcomb, Secretary-Treasurer of the American Foundation for Pharmaceutical Education, was invited to address the Executive Committee meeting, and to discuss the possibility of carrying out the Pharmaceutical Seminar for 1949. Dr. Newcomb assured the Committee that if a detailed program could be made available to the Foundation by January 1949, financial assistance could virtually be assured."

The Committee appointed by Chairman Christensen prepared detailed plans for the proposed Seminar which were submitted to the American Foundation for Pharmaceutical Education prior to January 1, 1949, as requested.

The following is quoted from the minutes of the meeting of the Board of Directors of the American Foundation for Pharmaceutical Education held April 14, 1949:

"Chairman Joseph B. Burt of the AACP Executive Committee next presented a complete report covering proposed seminar for pharmacy teachers to be held from June 27 to July 8 inclusive at the University of Wisconsin, Madison, Wisconsin, and requested that financial assistance be provided by the Foundation to the extent of \$7,990.00 to cover the estimated expenses of the proposed seminar. After a full discussion and on motion duly made and seconded, the Foundation Directors voted unanimously to appropriate \$6,000.00 to be sent to the

AACP for use in defraying expenses of the proposed seminar with the understanding that any unused portion would be returned. The full report of Chairman Burt and tentative program of the Pharmacy Teachers Seminar is attached to these minutes."

This is how the teachers' seminars came about. Since the summer of 1949, six seminars have been held, all of them supported financially by the American Foundation for Pharmaceutical Education, at a total cost of approximately, \$38,000.00. The fields covered were, specifically: Pharmacy (1949); Pharmacy Administration (1950); Pharmacology (1951); Pharmaceutical Chemistry (1952); Pharmacognosy (1953); and Pharmaceutical Education in General (1954). You will have the pleasure of hearing brief reports from the Chairmen of each of these Seminar Committees. These will assist you in appraising the value of the program. In my opinion, no other activity sponsored by the American Association of Colleges of Pharmacy has made a greater contribution to pharmaceutical education.

#### 1949—Pharmacy

(Arthur H. Uhl, Chairman: J. B. Burt; L. C. Zopf)

Dean Burt has reviewed for you the thinking and planning that led up to the first Seminar. It was previously agreed to have the first seminar deal with pharmacy and those courses pertaining to that area of instruction. The University of Wisconsin was selected as the place of meeting and the time was set for June 27 to July 8, inclusive.

The chairman of the Pharmacy Seminar spent some time with Dr. Elliott in order to get his thinking and background in a general way relative to the "seminar idea." Although much was gained from these visits the committee was somewhat at a loss to know just how to approach the assignment, i.e., "how to teach teachers in our schools of pharmacy to become better teachers." We realized, if we were to do the job, the emphasis must be placed on *how to teach* rather than *what to teach* because we had to assume that teachers know what to teach. With this in mind, who then were to be the teachers? It was finally decided that a rather large group be



used instead of a few. It seemed that it would be more desirable to have someone well qualified discuss a specific portion of our course work than to attempt to have a few try to cover the entire field. On this basis those who were asked to serve were men the committee believed could do a good job. This does not imply that there were others who could not have done as well.

Twenty-three individuals took part in presenting specific parts of the program. Nineteen of these were from schools of pharmacy and four were from the School of Education of the University of Wisconsin. Dr. M. O. Pella of the School of Education acted as co-chairman and was with the group during the entire session.

The program was divided into five parts. The first two days were devoted to general education as applied to the teaching methods and techniques of professional courses. This was followed by the application of these principles to the area of general pharmacy, dispensing pharmacy, manufacturing and hospital pharmacy, and history of pharmacy. The general sessions were followed by discussion periods in which the entire group took an active part. The staff members from the area of general education led these discussion periods and helped to keep the discussion within the framework of the objectives of the seminar.

Thirty-nine different schools were represented. In addition, there were three Canadian schools and the University of the Philippines. Ninety-six individuals registered for the Seminar and took part in the program. Also present for the entire program were Dr. Lloyd E. Blauch representing American Council on Education and Dr. George Webster, Chairman of the Curriculum Committee. Dr. Edward C. Elliott was present at several of the sessions.

I might add that the regular program did not take into consideration discussions of curriculum, sequence of courses, prerequisites, course content, etc., other than to illustrate certain points brought out by the speakers. However, evening sessions were held and with Dr. Webster, Dr. Blauch, and other members of the Curriculum Committee present, these

topics were treated in considerable detail. Thus, the main business of the seminar was not confused and the two aspects were kept separate and distinct.

A review of the program gives a better idea of the work covered. Much of the material presented was published in the JOURNAL, either in abstract or in full, in January, 1950. The one very real disappointment that all of us who were in attendance have is that we do not have a record of the discussions which took place during the sessions set aside for that purpose. Certainly these spirited presentations and often differences of opinions were a very important part of the program—perhaps the most important.

#### 1950—Pharmacy Administration

(B. V. Christensen, Chairman; J. B. Burt; H. H. Maynard; H. H. Schaefer; L. C. Zopf)

The Seminar in Pharmacy Administration was held on the campus of The Ohio State University during the period June 19th to 30th, 1950. Please note that this covered ten days of actual instruction. The total number of registrants was 68 representing 45 firms or institutions; namely, 40 colleges of pharmacy and 5 business organizations interested in Pharmacy. The program covered a wide range as will be noted from the summary which follows.

Attention is herewith directed to the recommendation made by The Pharmaceutical Survey Committee to the American Council on Pharmaceutical Education that what is now designated "Pharmacy Administration" be included in the curricula of colleges as one of the requirements for accreditation. This recommendation was adopted by the Council to become effective, July 1, 1952. It is to be noted also that during the course of the Survey a consultative committee was formed to cooperate with the Committee on Curriculum in making a special study of the area of Pharmacy Administration. The recommendations of this consultative committee are included in Volume I of the *Proceedings of the Seminar in Pharmacy Administration*.

Pharmacy Administration as now used in its relation to the pharmaceutical curriculum deals with the management and operation of a retail pharmacy. Its subject matter is selected from three fields; namely, pharmacy, business and law. In its broad conception it deals with facts and principles that are selected from economics, accounting, drug marketing, pharmacy management and law and adapts them to the operation, management and maintenance of a pharmacy. A background in pharmacy is essential. Adequate preparation in business principles and administration and law or both is definitely necessary.

The extent and distribution of courses to be included in this area is a difficult problem especially in colleges limited to a four-year curriculum. In such cases careful consideration must be given to the relative importance of subjects under consideration. Such courses might be listed as electives so that students may choose according to their anticipated needs in the light of the kind of practice which they expect to follow.

It is to be noted that the *Proceedings of the Seminar in Pharmacy Administration* include outlines of the courses recommended to be included in this area. These are not intended to be used specifically as required teaching outlines but preferably as suggestions concerning the scope and character of information which may be included in a course or courses of instruction. From these outlines the individual college may make selections. Obviously the material selected must be determined according to the choice and judgment of the instructor as indicated by local needs and conditions.

It is to be noted that the amount of material covered is far in excess of that which any college would find possible or even advisable, if it were possible to use. Consequently, beginning on page 4, Volume I and extending to page 17 a series of suggestions are offered to serve as criteria in selecting from the large amount of teaching material included in these volumes that material which has a definite relation to pharmacy. All teachers of Pharmacy Administration should carefully study these pages. These suggestions are further elaborated in the pages which follow.

On the basis of a study made by the consultative committee above referred to, it was found that all colleges offer instruction in Pharmacy Administration but in varying amounts. The offerings ranged from one semester credit to eighteen semester credits with the average nine. This committee suggests the following subjects for inclusion in the curriculum—Economics, as a basic course, 3 semester hours; Drug Marketing, 3 semester hours; Pharmacy Accounting, 3 semester hours; Pharmacy Management, 4 semester hours; Pharmaceutical Law, 3 semester hours; Business Law, 3 semester hours as an elective. This may be considered a pattern from which a college may select according to possibilities and needs.

Again, it is to be noted that valuable and pertinent material concerning such topics as marketing various types of drug products; drug store personnel; merchandising procedures and federal drug laws is included in these Proceedings.

Probably one of the most valuable features of these volumes is the bibliographies which are found at the ends of several chapters. These include useful material some of which may be obtained from the sources mentioned to add to the library and reference material of the individual colleges for use of students. As illustrations, I refer you to the outline covering "Some Aspects of Business Organization in an Age of Marketing," page 7, Volume II and "Federal Laws Dealing with Drugs and Cosmetics," page 23, Volume II.

Please observe that Volume II contains material primarily supplementary in nature. In this connection attention is directed to the practical suggestions concerning teaching, drill and research found in this volume. For example:

A. Use of the Model Pharmacy as a laboratory for Drug Store Merchandising and Sales Promotion. See Volume II. Projects may be carried out to demonstrate various aspects of drug store operation and thereby provide students with opportunity to practice some of the measures suggested and discussed in class. It is to be noted here that many laboratory experiments serve this purpose and particularly those adapted for use in the Dispensing Laboratory. Slides and picture

films could be used to advantage to provide general background in many discussions concerning management.

B. Merchandising procedures and problems as outlined in the section so entitled in Volume II. Here the cooperation of drug stores might be enlisted and students assigned to make studies of drug store operations of direct interest to the proprietors. Such projects not only are helpful to the proprietor but are of vital interest and practical importance in getting across to the student how and why such studies are significant in successful drug store operation.

Suggestions and information are offered in Volume II covering problems involving accounting such as in the chapter "Accounting Problems of the Retail Drug Store"; problems involving principles of management such as suggested in the chapter dealing with management of Retail Pharmacies; likewise suggestions dealing with problems falling in the area of sales promotions as are outlined in the last two chapters in Volume II.

In conclusion, it is to be observed that Volume I includes material that deals primarily with basic and fundamental considerations concerning Pharmacy Administration such as the scope and content of subject matter recommended for inclusion in specified courses. Volume II deals primarily with suggestions and information involving procedures, problems for study and research on the part of students and material supplementary to that contained in Volume I.

### **1951—Pharmacology**

(Glenn L. Jenkins, Chairman: J. B. Burt; K. K. Chen; L. D. Edwards; H. H. Schaefer; L. C. Zopf)

The Teachers' Seminar on Pharmacology and Related Subjects was held at Purdue University throughout the week of July 9-14 inclusive, 1951. Forty-two individuals participated in the didactic instruction which included thirty-six lectures and two panel discussions. Fifty-one individuals participated in presenting forty-three laboratory demonstrations designed to show the proper use of equipment and the most suitable technique for instruction at the undergraduate

and graduate levels as well as in research. Four equipment manufacturers displayed their apparatus and supplies pertinent to pharmacological work. The School of Pharmacy arranged a display of book and laboratory manuals, and compilations of library reference books and laboratory experiments were made available to all registrants.

The Seminar was attended by 215 individuals of whom 193 were registrants and participants in the program. They came from sixty-five different colleges and universities and seventeen industrial companies. Thirty-two states and the District of Columbia were represented. Among the colleges and universities represented were four from Canada, two from the Philippine Islands, and one each from Egypt, India and Japan.

It is impossible to convey in a report the fine spirit that prevailed throughout the Seminar. Those who were in attendance have commended the careful preparation and able presentation by members of the faculty, the well planned and expertly performed demonstrations, and the details of planning and execution of tasks. Favorable comment also has been received concerning the careful selection of subject matter, the graded order of presentation, the prompt and regular attendance at meetings, and the general superior esprit de corps that prevailed.

It is believed that the Seminar was highly successful and that the program carried out accomplished the objectives to upgrade the quality of instruction in the area of pharmacology and related subjects in our pharmacy schools. This upgrading as it gains momentum in the years ahead will bring improved teaching to successive generations of students. In time a greater profession giving increased service to the people will result.

Six hundred sets of the *Proceedings of the Teachers' Seminar on Pharmacology and Related Subjects* were issued in two volumes and distributed to registrants, schools of pharmacy and libraries.

It is difficult to assess the educational values that came directly or indirectly from the Seminar. It is known that,



since the Seminar was held, many schools have established divisions of instruction in pharmacology, some have increased the quantity of instruction in this area, and many have upgraded the quality of instruction. The Seminar in Pharmacology undoubtedly contributed much to this progress.

#### 1952—Pharmaceutical Chemistry

(Tom D. Rowe, Chairman: F. F. Blicke; J. B. Burt; L. M. Parks; J. A. Reese; L. C. Zopf)

The fourth Teachers' Seminar, dealing with Pharmaceutical Chemistry, was held at the University of Michigan, in Ann Arbor, from July 7 to 12, inclusive, 1952. All areas of this field, both basic and applied, were included on the program. There were five full days of sessions and a half day on Saturday in addition to which there was one night meeting.

It was the opinion of the Committee which reviewed the results of the Seminar at its conclusion that it would be advisable not to have night or Saturday sessions in the future. We found that intensive work at the meetings during the day left those in attendance with little energy to appreciate or participate in a night session. Although the Saturday meeting had some of the best papers of the entire program, a large number of people felt it necessary to begin their drives home either Saturday morning or after the Friday afternoon session. It seems to me that the idea of discontinuing Saturday and night sessions is a wise move, and I hope they will not be reinstated in future seminars.

We had at Ann Arbor a total of 179 registrants. These represented 64 schools, four of which were Canadian colleges of pharmacy. Thirty-six states and the District of Columbia were represented. In addition to the colleges, there were eleven pharmaceutical manufacturers who had representatives either in attendance at the meetings or participating in the program. Eight other companies had equipment on display in the College of Pharmacy laboratory and books from various publishers were also exhibited. A faculty of 39 members presented papers during the twelve sessions that were held.

The faculty included prominent teachers and research workers in basic divisions of chemistry as well as leaders in pharmaceutical chemistry.

We felt at the conclusion of the Seminar that it had been most successful, and comments we have heard since that time have substantiated our opinion. In looking back on the Seminar and on the many excellent papers that were presented, it is difficult to pick out the outstanding contributions. In retrospect, however, three observations do stand out.

First, the Seminar substantiated the rather well known fact that Pharmaceutical Chemistry is as well-staffed and as well-taught as any of the five major areas of professional instruction in the pharmacy colleges. There are a large number of outstanding teachers and extremely competent individuals in this field.

Second, presence of these competent persons perhaps led to what I believe is the major contribution of the Seminar: because of the outstanding papers presented and because of the excellent thoughts expressed during the discussions, all of those in attendance have been stimulated to do an even better job in their teaching in the future.

I believe that those just beginning in the field who had an opportunity to hear and exchange ideas with the well-established teachers, recognized they had a tremendous job to do in order to live up to the accomplishments of these experienced individuals. On the other hand, the wealth of ideas from the younger teachers made the older ones realize they had to keep up their good work if they were to maintain Pharmaceutical Chemistry on the high plane they had established for it and which was being developed even further by the comparative newcomers to the group. The meeting gave everyone a feeling of the importance of their contributions and the need for an ever increasing betterment of their work.

I am sorry we did not record the discussions on tape, for editing and publication as part of the Proceedings. The discussions include some of the most important contributions, and I hope future Chairmen follow the example set at Con-

necticut this year so in the future we may have permanent records of the discussions. Formal presentations of the Michigan Seminar were published early in the fall of 1952, as the *Proceedings of the Teachers' Seminar on Pharmaceutical Chemistry*.

Third, the papers presented, when looked at as a whole, emphasized interdependence of the basic and applied courses in chemistry. They also pointed out the contributions to be made mutually by the teachers in these two aspects of a common broad field. The papers further brought out the need for correlation among the various basic and applied courses as well as with other applied courses in the pharmacy curriculum.

There is no way to determine whether or not the points of the last two observations have been realized in the various colleges since the Seminar. If they have been realized to any extent, we can be certain that the quality of instruction in pharmaceutical chemistry today has improved over what it was before the Seminar was held. If such is the case, and I believe it is, the major objective of the Seminar was accomplished.

#### 1953—Pharmacognosy

(L. David Hiner, Chairman: J. B. Burt; E. P. Claus; T. C. Daniels; H. W. Youngken, Jr.; L. C. Zopf)

The Pharmacognosy Seminar met at the University of Utah, in Salt Lake City, from August 10 to 14, inclusive, 1953. The program was devoted to:

1. Defining the objectives of the courses in pharmacognosy and discussing course modernization.
2. Relating pharmacognosy to the other courses in the pharmacy curriculum.
3. Discussing the basic prerequisite courses necessary to the more effective teaching of pharmacognosy.
4. Reviewing methods of motivating students in the mastering of the pharmacognosy discipline.
5. Reviewing the study of pharmacognosy at the graduate level.

I would rather leave the evaluation of the Seminar in the hands of those who attended. They are the ones who made

the Seminar on Pharmacognosy, by their fine participation, and by their presence and cooperation. It was a pleasure and an inspiration for the Utah group to have the honor of their presence. Confidentially, I almost didn't invite the group because of our very limited housing facilities. Then I recalled the splendid people who make up the Seminars, and my enthusiasm got the better of my good judgment. They were cooperative, interested, and enthusiastic, and were excellent guests. Seminarians will never be more welcome than they were in Zion.

In the Seminar we solved a lot of our problems, created some new ones, and generally revived the "spark" of pharmacognosy. We had some good spots, some bad ones, and some that were down right inspirational. I am deeply grateful to all those of our group who participated in making the program a success. Special thanks goes to Dr. Lloyd E. Blauch for his assistance in the evaluation of our efforts. He fit so neatly into our group that I believe we could make a good pharmacognosist of him. My colleagues at Utah also deserve mention. Pharmacy was welcomed on our campus, and Dean Angelman and the rest reflected their pleasure at the caliber of men the Seminar attracted. Your broad interest in education has created respect for our profession.

To my committee, Doctors Youngken, Jr., and Claus, and Deans Burt, Daniels, and Zopf, my sincere thanks. I hope every local Seminar chairman is lucky enough to get a committee like mine. Wisdom, experience, imagination, and a sense of humor were theirs. I had everything in this group, and don't think the latter isn't necessary. Now, because an official summary and evaluation are contained in the Proceedings of the Teachers' Seminar on Pharmacognocoy and Related Subjects, let's have a look at some Seminar data.

There were 157 people registered for the events of the Seminar week. Of this number 92 were active in pharmaceutical education as deans or teachers. Nine students registered, 39 wives and adult relatives, 11 were children, and 6 were Utah friends of Pharmacy who were interested in medicinal plants. The remainder may be listed as unclassified.

A total of 64 institutions were represented. Included in this group were 4 Canadian Universities, the University of Oslo, Norway, and the 1st Fouad University, Cairo, Egypt. A large list of the American Colleges and schools were represented. These are a testimony to the interest of educators and administrators in our colleges of pharmacy. It was a privilege to have served such a noble group, and in my prejudiced estimation I believe the 1953 Teachers' Seminar on Pharmacognosy and Related Subjects accomplished its objectives.

#### 1954—Pharmaceutical Education

(Harold G. Hewitt, Chairman: L. E. Blauch; L. M. Parks; A. E. Schwarting; E. A. Swinyard; S. Wilson; L. C. Zopf)

The sixth annual Teachers' Seminar, on Pharmaceutical Education in general, was held at the University of Connecticut at Storrs, from August 15 through August 20, 1954. The theme of this Seminar was "How to Teach," in contrast to some of the other Seminars, which have concentrated more on the subject matter of each of the five areas of professional instruction, with greater emphasis on "What to Teach."

There were 325 registrants for the various meetings, which involved not only the Teachers' Seminar programs in the areas of Pharmacy, Pharmacy Administration, Pharmaceutical Chemistry, Pharmacology, and Pharmacognosy, but additional sessions on Pharmacy Orientation and of the Plant Science Seminar. Of the registrants, 225 were seminarians participating in the programs and the remaining 100 were wives and children. There were 63 members of the American Association of Colleges of Pharmacy with one or more representatives in attendance. Over and above this, there were nineteen non-member institutions or organizations represented.

Your Committee at its meeting last fall decided to try a new plan of presentation for this Seminar with the major theme "How to Teach." It was decided that we should invite various educational specialists to speak at the morning meet-

ings, and then break into the five subdivision sections in the afternoon for discussion.

The program commenced Sunday evening with words of greeting from Dr. A. N. Jorgensen, President of the University of Connecticut, followed by greetings from W. Paul Briggs, Secretary, American Foundation for Pharmaceutical Education (in absentia), and Edward P. Reif, President, American Association of Colleges of Pharmacy. The evening meeting was closed by the statement of the objectives of the Seminar, "What Do We Expect to Accomplish?" by Lloyd E. Blauch, Chief of Education in the Health Professions, Office of Education, Department of Health, Education and Welfare.

The afternoon discussions were based on the themes of the morning sessions. The Monday sessions were devoted to The Teacher; Tuesday, to Methods of Classroom Instruction; Wednesday, to Methods of Demonstration and Laboratory Instruction; Thursday, to Testing; and Friday, to Audio-visual Aids. The Summary in review of the Seminar, "Have We Realized our Objectives?" by L. E. Blauch, brought the Seminar to a close on Friday afternoon.

While I could not concentrate on any one section throughout the week because of administrative duties of the Seminar, I received the impression that the morning-presentation, afternoon-discussion type of meeting was most successful and is to be recommended to future committees for careful consideration.

Probably the outstanding feature of the afternoon meetings was the active and widespread participation in discussions. Particularly was it encouraging to note the many young men present who joined in the arguments and discussions. This is most encouraging, for it is to them we must look for the future teaching of the various pharmaceutical subjects. I hope that in all future meetings more graduate students looking toward teaching and the younger members of our teaching staffs will again be encouraged to attend, and that even more of them will be able to come than was possible in 1954.



While the success of the Seminar should be evaluated by those participating and not by your Committee or its Chairman, it was our distinct feeling that those who came gained a great deal which should be reflected in more effective teaching in the days ahead. The program as conceived by your Committee was well executed and enjoyed excellent presentations by all of the professional experts who accepted our invitation to present papers at these meetings. Formal papers presented will appear in the Proceedings of the Teachers' Seminar on Pharmaceutical Education, as will a summary of the discussions of each of the afternoon section meetings.

I wish not only to thank the Committee who worked so hard to make this a success, but to express to all of our discussion leaders among our associates my deep appreciation for their cooperation in bringing this meeting to a successful conclusion. I wish to express my personal thanks for the honor and privilege of serving you as chairman of the sixth annual Teachers' Seminar.

#### **Support by the American Foundation for Pharmaceutical Education**

W. Paul Briggs

In his introductory remarks, Dean Burt indicated the extent of the financial support of the Seminars by the American Foundation for Pharmaceutical Education. The figures presented by him bespeak in one way the high value placed on these meetings held during the past six years under the sponsorship of the American Association of Colleges of Pharmacy.

I have been privileged to attend several of the Seminars and have been impressed each time by the high quality of the formal presentations and by the thoughtful participation in the discussions by practically all of the seminarians in attendance. I am convinced of the beneficial and far-reaching effects on each of the areas of professional instruction in pharmacy.

Please be assured I deeply regret that circumstances beyond my control prevented me from being with you at the

general Seminar on Pharmaceutical Education held at Storrs under such capable auspices and at so favorable a location. I have been told repeatedly that the morning and evening sessions were pitched at the same high level of earlier Seminars, and that the afternoon sectional meetings were an innovation which gave even greater opportunity for repeated exchange of points of view by every representative. The presence throughout the sessions of well over two hundred teachers and administrators representing a very substantial majority of your member colleges is further convincing testimony to the worth in which the Seminars are held.

Still another source of evidence on the value placed on gains to be realized from attendance at the Seminars lies in data on attendance over the years. I am indebted to the Secretary of the Association for a summary of these data, and to me they indicate a steady gain in appreciation by you of what the Seminars have to offer.

At the first two Seminars, about 45 per cent of the member colleges were represented. This figure and the ones to follow are based on the total members of the Association as of this date rather than as of the respective Seminars. Nor do the data include representatives from non-pharmacy colleges or from foreign institutions. The precise figures for member colleges represented at the first two Seminars are 34 and 35.

Representatives at the next three Seminars came from 56, 55 and 53 member colleges, approximately 75 per cent of the colleges currently holding membership in the Association. This marked increase in representation can only mean that those who went to the earlier meetings found them to be profitable, and spread the word among their associates in the related professional areas of instruction.

And at the recent general Seminar, with 63 member colleges represented accounting for 85 per cent of the total membership of the Association, a new high in attendance has been reached. I am confident participation to this extent compares most favorably with attendance at comparable gatherings in any other field of educational endeavor.

The record also shows that 10 member colleges have sent representatives to every one of the Seminars, and that only two of them have failed to be represented at one or more of the annual sessions.

As a result of the Seminars, significant and highly useful additions to the literature of pharmaceutical education are being made. I commend the Proceedings of the Seminars to your earnest study, and I urge every member of our pharmacy faculties, the experienced as well as the beginning teacher, to take full advantage of the very real opportunity offered in the Seminars for improvement in his teaching and his learning.

#### **Summary of Discussion**

The printed program of the fifty-fifth annual meeting suggested discussion from the floor under several headings: repetition of the cycle covered in the first five Seminars; one on librarianship; and Seminars in such sub-areas as hospital pharmacy, industrial pharmacy, professional orientation, or professional relations.

These possibilities were explored by a number of representatives from member colleges. Also suggested, from the floor, were Seminars on graduate instruction exclusively; administration ("seminar for deans"); and general education.

Several representatives suggested detailed attention in future Seminars to curriculum construction, "what to teach," and specific analysis of individual courses. Other representatives were equally verbal, or perhaps more so, in emphasizing the importance of "how to teach" rather than "what to teach." Improvements in teachers' attitudes, procedures, and techniques were stressed, as was greater attention to the student as the focal point in contrast to teacher-centered or course-centered presentations at future Seminars.

Other speakers suggested an urgent need for study of integration among the areas of professional instruction; for continued attention to tests and examinations; and for seeking advice from representatives of non-academic segments

of pharmacy in planning Seminars, and even inviting such representatives to serve on Seminar faculties.

Further discussion revealed existence of considerable sentiment in favor of repeating the cycle, with two noteworthy variations in procedures of the first five-area cycle: inclusion as a topic of graduate instruction in the specific subject area being considered, and continuation of the workshop procedures followed at Storrs with such modifications as the specific Seminar requires.

Possibility of combining two or more areas of instruction in one Seminar was presented as a means for lessening the number of years between Seminars in a specific area of instruction.

A number of administrative matters were discussed, including length of time to be devoted to future Seminars. Consensus seemed to be that five days is about right, with avoidance of formal evening sessions to permit unorganized informal discussions to greater extent than was possible at Storrs. No one favored a time other than during the summer months.

A final administrative matter upon which strong sentiment was expressed was location. Advantages of a reasonably central location were emphasized and commonly recognized.

(The Secretary has since determined roughly the center of pharmacy-college population, by numbers of colleges, not by numbers of students. It is somewhat north of the center of Indiana, about mid-way between Indianapolis and Lafayette. As many colleges lie east of this point as lie west of it, and as many lie north as lie south.

A circle with a radius of 300 miles drawn from this point barely includes Iowa City—fortunately for the Secretary—and just misses Pittsburgh and Morgantown. It includes St. Louis, and all of the cities in which are located the pharmacy colleges of Wisconsin, Illinois, Indiana, Kentucky, Ohio, and Michigan.

Counting Pittsburgh and Morgantown, eighteen member colleges are located within or bordering the margin of the circle. Four of the six Seminars held thus far have been

within the circle, so only one out of each three to date has been held remote from this central area.)

An informal vote was taken on area of instruction for the 1955 Seminar, with results approximately as follows:

1. Repeat the cycle, beginning with Pharmacy: 60
2. General Seminar, all areas: 38
3. Graduate education: 15
4. Some new area: 2
5. "Seminar for deans": 2

As has been indicated in the October JOURNAL, and pursuant to sentiment expressed during the Forum on Teachers' Seminars, the Executive Committee voted to request invitations for the 1955 Seminar for the area of Pharmacy and within the period of June 20 to August 10. Approval was expressed of inclusion of some discussion of graduate instruction in the area of Pharmacy, and of the workshop procedures comparable to those of the 1954 Seminar.

### **Medical Library Scholarships**

The Medical Library Association is offering four scholarships of \$150 each for summer school courses in medical library work in 1955; two at Columbia University and two at Emory University. Applications should be made at once as the deadline is April 1, and considerable time must be allowed before that date for the examinations and approval of credentials. Completion of the course at either school will enable a student with a bachelor's degree and one year's library school training to qualify for Grade I certification by the Medical Library Association. For application forms and further information write to The Dean, School of Library Service, Columbia University, New York 27, N. Y., or to The Director, Division of Librarianship of Emory University, Emory University, Atlanta, Georgia.

In addition to the scholarships already announced, to be held at Columbia and Emory Universities, the Medical Library Association, at its Board Meeting in New York on January 15, approved two more scholarships of \$150 each to be offered in the 1955 summer course on **Bibliography of Bio-Medical and Physical Sciences** at the University of Southern California School of Library Science. This is the first time such scholarships have been offered on the west coast. The course is offered from June 20 to July 29. The instructor is Vilma Proctor, Ph. D., Librarian of the University Medical School. The course has a credit value of 3 units. For application forms and further information, write to Acting Director, School of Library Science, University of Southern California, Los Angeles 7.

## **Reports of Officers, Committees, and Delegates of the American Association of Colleges of Pharmacy at the 1954 Meeting in Boston, Concluded\***

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### **Report of the Chairman of the Committee on Problems and Plans**

In 1946 the Committee on Committees of the AACP defined the function of the Committee on Problems and Plans as follows:

"It shall be the duty of this Committee to bring before the Association problems pertaining to professional education and to education in general and to call particular attention to those areas where general educational problems apply to pharmaceutical education; it shall also be the duty of this Committee to define problems that pertain to pharmaceutical education and the welfare of this Association and to initiate a study of such problems and suggest plans for attack upon them."

In the meantime The Pharmaceutical Survey has performed this task in a most satisfactory manner.

In recent years the Committee has devoted its energies largely toward keeping what its members consider are the most important current problems for the promotion of pharmaceutical education before the Association.

The chairman's own belief is that the most important problem in pharmaceutical education is the improvement of teaching; what to teach, when to teach and how to teach. This belief is confirmed by expressions of the members of this committee, through the years, who are dissatisfied with

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\*The twelve reports that follow were carried over to this issue of the *Journal* because of lack of space in the October 1954 number.—Ed.



their own teaching methods and are searching for improvement. The belief is further confirmed by the fact that a perusal of the Journal of Medical Education, the Journal of Dental Education and the Journal of Legal Education indicates that other professions are dissatisfied with their own programs and methods and are putting forth great efforts to improve them. Finally the chairman is firmly of the opinion that the best way to promote the practice and the usefulness of any profession is to improve its educational program and teaching methods. Incidentally, this is the best way also to improve both professional and public relations and to enhance the dignity of the profession of pharmacy. A concrete example of what improved course content and teaching methods will do, even for a discipline, is demonstrated by the recent activity along these lines by the pharmacognosists.

Last year the minds of the committeemen seemed to gravitate to the subject of the teaching of ethics as a major problem. Perhaps this was enhanced by an apparent lowering of professional standards among pharmacy students and practitioners; perhaps by the concern for lowered standards in other professions and in business and politics in our country and even throughout the world. The Committee's efforts were concentrated upon the teaching of ethics and many contributions have appeared in the Journal on the subject.

At the Salt Lake City meeting last August, our efforts were turned in another direction by a request which was directed to the Editor of the Journal by the Executive Committee. The request was "that the Editor be encouraged to stimulate articles for publication on *ways and means* to direct more qualified graduates into graduate work." If that could be accomplished certainly it would be a major forward step in the improvement of teaching.

The Editor at once turned the problem over to the Problems and Plans Committee and the general reaction of all can be centered in the statement of one member when he wrote: "Problems of ways and means of 'directing' more qualified graduates into graduate work are coextensive with problems of ways and means of enticing more qualified graduates into

graduate work and of guaranteeing their acceptance by pharmacy faculties. Your choice of problems for deliberation by the Committee on Problems and Plans could not be more appropriate or of greater importance."

It was the chairman's belief that the best way to find out what the factors are that direct students into graduate work was to ask men who have been successful in the graduate area to tell in their own language what the factors were that led them into graduate study.

Then there are certain men engaged in graduate work who have had a wide experience with and a large following of graduate students. It should be revealing to find out why certain men were successful in having a large group while others with perhaps equal training and reputation had a fewer number. So along this line we have been working through the year.

It is impossible in a brief report to name all the factors that lead men into graduate work but it is possible to formulate a few generalizations. For example, an instructor must know his subject; he must be able to state the opportunities of work in his field that will bring satisfaction to the student. He must so state these opportunities so as to make them a challenge to the student. He must make the student feel that here is a field worthy of his talents and best efforts. He must make the prospective student feel that his specialty will be sufficiently remunerative so that he can support a family and be respected as a citizen in his community. The instructor must have imagination and he must be enthusiastic about the opportunities in his field, and on top of it all he must be a human being, taking a deep personal interest in the student as a human being. An instructor lacking in these characteristics will be a "dud" so far as directing students into graduate work is concerned. Jules Verne was the world's greatest when it came to stimulating men to explore the unknown.

I have said nothing new to you. What I have said you well know. But there are men among us who need to be reminded of what the appeal must be to induce the under-

graduate to enter upon graduate study and it will do none of us any harm to have this repeated again and again.

I know of no story that is more interesting than the autobiographies of these men that tell why they undertook graduate study. Some of these have been printed in the January and current April numbers and others will appear through the year as space becomes available. In this study many important problems have been brought to the surface. For example: Dean Hurd H. Jones, Jr., of the Texas Southern University made a study of approximately one hundred members of the University staff. Approximately two-thirds of them stated that their continuation towards graduate study was the stimulus given them by their ideal teachers. Then he made an attempt to discover at what level these teachers taught. To his surprise most of them were found to be in the elementary grades and the high school, and a very few were found on the college level. This is not so surprising when one remembers that boys and girls are born with questions in their mouths and their everlasting questions drive parents and everyone else to distraction. They are finally dismissed as nuisances and so suppressed that by the time they enter college a comparative few have enough curiosity and ingenuity to become candidates for membership in Sigma Xi.

Another problem of major importance is raised by a question propounded by Dr. George Hager of the University of Maryland, when he asks: Are we not building a whited sepulchre for ourselves when some educators deny their facilities for higher education in the pharmaceutical sciences, such as pharmaceutical chemistry, to persons who have not been trained in pharmaceutical technology? That he declares to be comparable to permitting only automobile salesmen to design and manufacture cars. The chairman agrees with Dr. Hager's contention.

The chairman must bring this report to a close but he cannot do so without citing a declaration of Prof. Edward S. Brady that a major deterrent in directing students into graduate work in the pharmaceutical sciences is the fact that

much of our graduate work is of such a low grade that the student has little respect for it. Many problems are assigned that belong rather to a senior problem course. The chairman is convinced that the character of our graduate work needs scrutinizing.

While this report has dealt almost exclusively with the problem of directing more students into graduate study, the Committee has not been unmindful of its other problems, namely, those having to do with the improvement of teaching, the question of ethics, of the honor system, or organization, and new courses. As space permits articles will appear in the future number of the Journal.

It has been a delight to work with these young men of vigorous mentality and see our major problems as they see them and grasp the forward look which is theirs. For this opportunity and for their cooperation, the chairman is most grateful.

RUFUS A. LYMAN, *Chairman*

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## **Report of the Committee on Educational and Membership Standards**

The report of our Committee this year consists of a compilation of data concerning pharmaceutical education at the midcentury period in most of our contemporary world other than the United States. Originally this study grew out of a need to evaluate the credentials of students from foreign schools who wished to continue their education in AACP member colleges. It has now been extended considerably beyond this scope and may well serve to give a brief, yet comprehensive, picture of academic pharmacy as it is now presented in most of the world.

This is, in fact, a committee report, as each of the five members were assigned certain countries and were asked to

obtain the following information about pharmaceutical education in these countries: the name and location of each pharmacy school; the language in which instruction is given; the total years of elementary and secondary education required for admission to the pharmacy curriculum; the number of years required to complete the pharmacy curriculum after the completion of secondary education; additional requirements, such as practical experience, required for licensure; the degree or diploma granted on completion of the pharmacy course and additional degrees possible. This information was obtained from a variety of sources such as the use of a questionnaire sent to the schools, data supplied by the embassies of foreign countries, reference to publications of the Federal Security Agency of the U. S. Office of Education, reference to books dealing with foreign universities, bulletins issued by certain schools of pharmacy, and by personal correspondence with some of the schools.

In order to conserve time and space most of the data has been organized in outline form. In virtually all countries a minimum of eleven or twelve years of elementary and secondary education are required for admission to the pharmacy curriculum. Several schools require, in addition to this, the equivalent of the completion of our freshman year for admission to the pharmacy curriculum.

No detailed data is given with respect to requirements concerning apprenticeship or practical experience, as such practices differ widely. Suffice it to say that virtually all countries require some form of experience in pharmacy before licensure. Likewise practices differ so widely with respect to additional degrees beyond the baccalaureate that this has not been treated in detail.

It is noteworthy that the proportion of women practicing pharmacy in most foreign countries is greater than found in the United States.

The information presented in the following pages represents what is believed to be practices typical of the period 1947-1954. In some instances conflicting data have been found so that which is presented may not agree with all sources.

It has not been possible to obtain information concerning pharmacy in the Union of Soviet Socialist Republics in sufficient detail to make it worth listing. Likewise a few countries are missing because of delay or difficulty in obtaining information.

#### PHARMACEUTICAL EDUCATION IN CANADA

Name and location of school	Length of course in years	Degree or Title
Maritime College of Pharmacy Dalhousie University, Halifax, N.S.	3	B.Sc. in Pharmacy
School of Pharmacy Laval University, Quebec, P.Q.	4	Bachelor in Pharmacy
School of Pharmacy University of Montreal, Montreal, P.Q.	4	Bachelor in Pharmacy
Ontario College of Pharmacy University of Toronto, Toronto, Ont.	4	B.Sc. in Pharmacy
School of Pharmacy University of Manitoba, Winnipeg, Man.	3	B.Sc. in Pharmacy
College of Pharmacy University of Saskatchewan, Saskatoon, Sask.	3 & 4	B.S.P.
School of Pharmacy University of Alberta, Edmonton, Alta.	3 & 4	B.Sc. in Pharmacy
Faculty of Pharmacy University of British Columbia, Vancouver, B.C.	3	

Instruction in the Canadian Pharmacy Schools is in the English language except in the Montreal and Quebec schools where French is used. In assessing the training of graduates of certain Canadian Schools of Pharmacy, attention is called to the fact that some of them require completion of a five-year high school course for admission. This may be considered as the equivalent of one year of college work before they have entered the pharmacy curriculum.

#### PHARMACEUTICAL EDUCATION IN MEXICO, CENTRAL AMERICA AND THE WEST INDIES

##### Mexico

The total number of years of elementary and secondary education before admission to the pharmacy curriculum is



usually eleven. Instruction is in Spanish. There is marked difference in the curricula of different schools. In some schools women students outnumber the men, while in others there is only a small preponderance of men.

Name and location of school	Length of course in years	Title of Graduate
University of Sonora Hermosillo, Sonora	2	Pharmacist
University of Sinaloa Culiacan, Sinaloa		Pharmacobiological Chemist
University of Nuevo Leon	4	Pharmacobiological Chemist
Monterrey, Nuevo Leon	3	Pharmaceutical Chemist
	2	Pharmacist
University of San Luis Potosi San Luis Potosi, San Luis Potosi	4	Pharmacobiological Chemist
University of Guadalajara Guadalajara, Jalisco	4	Chemical Pharmacobiologist
University of Guanajuato Guanajuato, Guanajuato	7	Pharmacist
	8	Pharmaceutical Chemist
School of Chemistry and Pharmacy Michoacan University of Saint Nicholas of Hidalgo, Morelia, Michoacan	2	Pharmacist
National Autonomous Uni. of Mexico Mexico City, Mexico	4	Chemicobiological- Pharmacist
	4	Chemical Pharmacist
University of Pueblo Pueblo, Pueblo	4	Pharmacobiological Chemist
Chiapas Institute of Sciences and Arts Tuxtia Gutierrez, Chiapas		
University of Yucatan	4	Pharmacist
Merida, Yucatan	5	Chemical Pharmacist

### Central America

Since 1821, with the liberation of the Central American Colonies, these countries have been characterized by frequent internal struggles and limited economic resources. Their language and culture continue to show the influence of Spanish domination. There is evidence of improvement in their educational programs during recent years.

Name and location of school	Length of course in years	Title or Degree
Faculty of Chemical and Pharmacy Sciences University of San Carlos, Guatemala	5	Pharmacist
School of Chemistry and Pharmacy Central University of the Republic Tegucigalpa, Honduras	5	Doctor of Chemistry and Pharmacy
School of Pharmacy and Chemistry University of El Salvador San Salvador, Salvador	5	Doctor of Pharmacy and Chemistry
School of Pharmacy National University of Nicaragua Leon, Nicaragua	5	Doctor of Pharmacy
School of Pharmacy University of Granada Granada, Nicaragua	5	Doctor of Pharmacy
School of Pharmacy University of Costa Rica San Jose, Costa Rica	4	plus a 2 year internship Licentiate in Pharmacy
Department of Pharmacy, Faculty of Medicine, University of Panama Panama City, Panama		Licentiate in Pharmacy

### West Indies

Faculty of Pharmacy University of Havana Havana, Cuba	4	Doctor of Pharmacy Instruction in Spanish
School for Medical Aides Santa Clara Central University Santa Clara, Cuba		Courses are offered in Pharmacy. Instruction in Spanish.
Faculty of Pharmacy University of Haiti Port Au Prince, Haiti	3	Instruction in French
School of Pharmacy and Chemistry University of Santo Domingo Santo Domingo, Santo Domingo	4	Instruction in Spanish
College of Pharmacy University of Puerto Rico Rio Piedras		Is a member of the AACP.

PHARMACEUTICAL EDUCATION IN SOUTH AMERICA

Pharmaceutical education in the South American countries is characterized by a wide variation in the content and length of the curriculums; by a significant number of women (in some schools the women students outnumber the men); most of the instruction is in the Spanish language except in Brazil where Portuguese is generally in use. In many institutions pharmacy and dentistry are included under the same faculty.

**Argentina**

Name and location of school	Length of course in years	Degree or Title
Department of Pharmacy in Medical School, National University of Buenos Aires, Buenos Aires	4	Doctor of Pharmacy
Faculty of Chemistry and Pharmacy La Plata National University La Plata	4	
Department of Biochemistry and Pharmacy, National University of Cordoba	6	Doctor of Biochemistry and Pharmacy
School of Pharmacy National University of the Littoral Rosario	4	Doctor of Biochemistry and Pharmacy
Faculty of Biochemistry, Pharmacy, etc. National University of Tucuman Tucuman	4	

**Bolivia**

School of Pharmacy and Biochemistry University of San Andres La Paz	5	
School of Pharmacy University of San Francis Xavier Sucre	4	Licentiate in Pharmacy
School of Pharmacy University of Cochabamba Cochabamba	4	Licentiate in Pharmacy

**Brazil**

<b>Name and location of school</b>	<b>Length of course in years</b>	<b>Title or Degree</b>
Faculty of Pharmacy University of Brazil Rio de Janeiro	3	Pharmacist
School of Pharmacy University of Bahia Sao Salvador (Bahia)		
Faculty of Dentistry and Pharmacy University of Minas Gerias Minas Gerias	3	Pharmacist
School of Pharmacy and Dentistry Private Institution Minas Gerias	3	
School of Dentistry and Pharmacy University of Parna Parna	3	
Section on Pharmacy, Medical School University of Rio Grande Rio Grande do Sul		
Santa Maria Faculty of Pharmacy Rio Grande do Sul		
Faculty of Pharmacy and Dentistry University of Sao Paulo Sao Paulo	4	Pharmaceutical Chemist

The following schools in Brazil offer instruction in pharmacy, but no detailed information has been obtained:

Juiz de Fora School of Pharmacy and Dentistry, Minas Gerias  
 Alfenas School of Pharmacy and Dentistry, Minas Gerias  
 Ouro-Preto School of Pharmacy, Minas Gerias  
 Para Faculty of Pharmacy, Belem, Para  
 State School of Pharmacy and Dentistry, Rio de Janeiro  
 University of Porto Alegre, Porto Alegre  
 Santa Catarine Faculty of Pharmacy and Dentistry, Santa Caterina  
 Araraquara Faculty of Pharmacy and Dentistry, Sao Paulo  
 Campinao Faculty of Pharmacy and Dentistry, Sao Paulo  
 Ribeirao Preto Faculty of Pharmacy and Dentistry, Sao Paulo  
 Ceara Faculty of Pharmacy and Dentistry, Ceara  
 Goias Faculty of Pharmacy and Dentistry, Goias

**Chile**

School of Chemistry and Pharmacy University of Chile, Santiago	4	Pharmaceutical Chemist
School of Pharmacy University of Concepcion, Concepcion	4	

### Colombia

Name and location of school	Length of course in years	Degree or Title
School of Pharmacy National University of Colombia Bogota	4	Pharmacist
School of Chemistry and Pharmacy Institute of Technology, Barranquilla	5	Diploma
School of Pharmacy University of Cartagena, Cartagena	5	Pharmaceutical Chemist

### Ecuador

School of Chemistry and Pharmacy Central University of Quito, Quito	5	Pharmaceutical Chemist
School of Pharmacy University of Guayaquil		

### Paraguay

School of Pharmacy National University of Paraguay, Asuncion	7	Pharmaceutical Chemist
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### Peru

School of Pharmacy University of San Marcos, Lima	3	Pharmacist
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### Uruguay

Faculty of Chemistry and Pharmacy University of the Republic, Montevideo	4	Pharmaceutical Chemist
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### Venezuela

Faculty of Pharmacy and Chemistry Central University of Venezuela, Caracas	4	Pharmaceutical Chemist
Faculty of Pharmacy University of the Andes, Merida	4	Doctor of Pharmacy

### PHARMACEUTICAL EDUCATION IN GREAT BRITAIN, IRELAND AND AUSTRALIA

In Great Britain there are two separate avenues leading to qualifications in pharmacy. To obtain the diploma carry-

ing the title Pharmacist Chemist, Ph.C., requires three years of study beyond secondary education in certain specified subjects in any one of a large number of British Technical schools. The Ph.C. program is under the direction of the Pharmaceutical Society of Great Britain and is not considered as an academic degree. The Board of Examiners of the Society gives examinations at certain stages of the three-year program. Before being admitted to the Pharmaceutical Register, in addition to passing certain examinations, the candidate must complete a period of apprenticeship. This period is one year if done after finishing the Ph.C. program of studies or two years if done before this.

The University Degree, B.Sc. in Pharmacy, is offered by only six British universities and requires four years of academic work. Most of the persons who take this degree enter pharmaceutical work other than retail pharmacy. If they wish to become listed in the Pharmaceutical Register, however, they must fulfill the same apprenticeship requirements as the Ph.C. diploma holders.

The six British Universities offering the B.Sc. Degree in Pharmacy are as follows:

University of Wales, Cardiff  
University of London, London  
University of Nottingham,  
Nottingham

University of Leeds, Leeds  
University of Glasgow, Glasgow  
University of Manchester,  
Manchester

Pharmaceutical education in Ireland is closely parallel to that in Great Britain with the exception that there is no university program leading to an academic degree. The extant program is directed and controlled by the Pharmaceutical Society of Ireland under State supervision. It takes five years after secondary education to become a licensed pharmacist. The first and fifth years consist of work taken in the College of Pharmacy, Ballsbridge, Dublin, while the middle three years involve apprenticeship with an approved pharmacist. After the successful passage of examinations the student becomes a Licentiate of the Pharmaceutical Society of Ireland (L.P.S.I.). Consideration is now being given to the pos-



sible inauguration of a program leading to the Bachelor of Pharmacy degree.

In Australia the University of Adelaide, located at Adelaide, has a Department of Pharmacy. The course requires four years with concurrent apprenticeship in a pharmacy. A diploma in pharmacy is issued upon completion of the course.

# PHARMACEUTICAL EDUCATION IN CONTINENTAL EUROPE

## Norway

Name and location of school	Length of course in years	Degree or Title
Pharmaceutical Institute University of Oslo, Oslo-Blindern	4 $\frac{1}{2}$ *	Graduate in Pharmacy
*1 $\frac{1}{2}$ years of this is in a pharmacy.		

## Sweden

Royal Pharmaceutical Institute Stockholm	3*	
The State Medical Board controls the number and selection of applicants.	6**	
*2 of these years are in a drug store.		
**3 of these years are in a drug store.		

## Finland

Pharmaceutical Institute University of Helsinki	3	Graduate in Pharmacy
As this country is bilingual both Finnish and Swedish are used.		1 year of academic work is followed by 2 years of apprenticeship

## Denmark

Royal Danish School of Pharmacy Copenhagen	2 $\frac{1}{2}$	Pharmaceutical Assist.
The Association of Danish License Holders and the Association of Danish Pharmacists control the number of apprentices each year.	4 $\frac{1}{2}$ *	License Holder and/or Degree in Pharmacy
*2 $\frac{1}{2}$ of these years are in a drug store.		

**Netherlands**

<b>Name and location of school</b>	<b>Length of course in Degree or Title years</b>
There are no separate schools of Pharmacy	7-8*
The study of pharmacy is under the Faculties of Science in one of the following universities:	7-8 Doctor of Science
State University of Leiden, Leiden	
State University of Utrecht, Utrecht	
State University of Groningen, Groningen	
Municipal University of Amsterdam, Amsterdam	

\*Pharmacist 1-3 years must be in a pharmacy.

**Belgium**

Courses in pharmacy are given at:	1 year training and final examination is required after university work.
University of Brussels, Brussels***	
University of Ghent, Ghent*	
University of Liege, Liege**	
University of Louvain, Louvain***	

\*Instruction in Dutch.  
 \*\*Instruction in French.  
 \*\*\*Instruction in Dutch and French.

**Germany**

The German Universities require 4 years of elementary and 9 years of secondary education for admission.

Free University of Berlin, West Berlin	2 years of practical work in an apothecary's shop required before beginning study, then 3 years in university. This is followed by another year in apothecary's shop.
Rhenish Fred. Will. Univ. of Bonn, Bonn	Apotheker (pharmacist) (Pharmaceutical chemist)
Fred. Alex. Univ. of Erlangen, Erlangen	3 more years in the university leads to the Doctor's Degree.
J. W. Goethe Univ. at Frankfurt (on Main)	
Albert Ludwig University, Freiburg	
University of Hamburg, Hamburg	
University of Kiel, Kiel	
Johannes Gutenberg University, Mainz	
Phipps University, Marburg	
Ludwig Maximilian University, Munich	
Westphalia State University, Munster	
University of Tübingen, Tübingen	
Julius Maximilian University, Würzburg	
Rhenish Westphalian Technical Univ., Aachen	
Technical Institute at Brunswick	
Technical Institute at Karlsruhe	

## France

Six different titles with respect to pharmacy are in current use in France. They are:

1. State Diploma of Pharmacist
2. State Diploma of Doctor of Pharmacy
3. State Certificate of Higher Studies
4. University Diploma of Pharmacist
5. University Diploma of Doctor of the University of Paris
6. University Certificate of Higher Studies

During 1946-47 there were 2,663 students listed as studying in the Pharmacy School of the University of Paris. A considerable number of these were women. In several pharmacy schools the ratio of men to women is about 5:4 while in others it is equally divided.

It appears that each of the universities having schools of pharmacy are under the control of the State. Depending upon the title to be earned the time required varies from 3 to 5 or more years.

### **Name and location of school**

Faculty of Pharmacy, University of Paris (Sorbonne), Paris  
Faculty of Medicine and Pharmacy, University of Marseille,  
Marseille

School of Pharmacy, University of Besancon, Besancon

Faculty of Medicine and Pharmacy, University of Bordeaux,  
Bordeaux

School of Medicine and Pharmacy, University of Caen,  
Caen and Rouen

School of Medicine and Pharmacy, University of Clermont-Ferrand

School of Medicine and Pharmacy, University of Dijon, Dijon

School of Medicine and Pharmacy, University of Grenoble,  
Grenoble

Faculty of Medicine and Pharmacy, University of Lille, Lille

Faculty of Medicine and Pharmacy, University of Lyon, Lyon\*

Faculty of Pharmacy, University of Montpellier, Montpellier

Faculty of Pharmacy, University of Nancy, Nancy\*

School of Medicine and Pharmacy, University of Poitiers, Poitiers

Faculty of Pharmacy, University of Strasbourg, Strasbourg

Faculty of Medicine and Pharmacy, University of Toulouse,  
Toulouse

\*The number of women students equals or exceeds the men.

**Algeria**

Faculty of Medicine and Pharmacy, University of Algiers, Africa. The program here is in French and closely parallels the French programs.

**Spain**

There are Faculties of Pharmacy in the following Spanish Universities:

State University in Barcelona  
State University in Granada  
State University in Madrid  
State University of Santiago de Compostela

The five-year course leads to the Licentiate in Pharmacy. Of 504 diplomas conferred in 1945-46, 205 of them were granted to women.

**Portugal**

<b>Name and location of school</b>	<b>Length of course in years</b>	<b>Degree or Title</b>
School of Pharmacy	3	Pharmacist
University of Coimbra, Coimbra		
Faculty of Pharmacy	5	Licentiate in Pharmacy
University of Oporto, Oporto		
School of Pharmacy	3	Pharmacist
University of Lisbon, Lisbon		

**Switzerland**

Pharmaceutical education in Switzerland is on a high scientific level. The following universities have schools of pharmacy:

Pharmaceutical School at Basel  
Pharmaceutical Institute at Berne  
School of Pharmacy at Lausanne  
School of Pharmacy at Geneva  
Pharmaceutical Institute at Zurich

The Doctor of Pharmacy Degree may be obtained by 1½ to 2 years' work beyond the Apotheker.

To qualify for the Assistantship Examination requires 3 semesters in a university and 1½ years in a pharmacy.

To qualify for the Professional Examination requires 4 more semesters in a university and 1 more year in a pharmacy. On passing this he becomes Apotheker or Pharmacist.

### Italy

After the completion of secondary education the pharmacy curriculum in Italian Universities requires four years and the presentation of a doctoral thesis. After receipt of the Doctor's degree, a State Examination must be passed to qualify as a pharmacist. In the academic year 1950-51 there were 5,575 women students among the 9,497 students studying pharmacy in the Italian Universities. During this year 1,132 women and 592 men received a degree in pharmacy.

The following universities are listed as having Schools or Faculties of Pharmacy:

University of Urbino, Urbino	University of Camerino
University of Naples	University of Cantania, Sicily
University of Torino	University of Genoa (Genova)
University of Siena	University of Messina
University of Sassari, Sardinia	University of Padua
University of Cagliari, Sardinia	University of Palermo
University of Perugia	University of Parma
University of Rome	University of Ferrara
University of Pisa	University of Bari
University of Modena	University of Pavia
University of Bologna	

### Poland

Faculties of pharmacy are listed for the University of Warsaw, the University of Lodz, and the Marie Skodowska University, Lublin. At Warsaw women outnumbered men almost 5 to 1.

### Austria

Faculties or schools of pharmacy are listed in the University of Vienna, the University of Graz, and the University of Innsbruck. Instruction is in German. The pharmacy course involves 3 years of university work followed by 2 years practical experience. The title of Magister Pharmaciae, Master of Pharmacy, is granted.

### **Hungary**

In the University of Budapest there is a Department of Pharmaceutics and an Institute of Pharmaceutics. A four year course leads to the Pharmacist's Diploma.

At the University of Szeged, at Szeged, under the Faculty of Medicine is a Department of Pharmaceutics and Medicines. A four year course leads to either a Chemist's Certificate in Pharmacy or a Druggist's Diploma. In 1947 five men and nine women received the Druggist's Diploma.

### **Czechoslovakia**

Under the Faculty of Medicine of Masaryk University at Brno, there is a program which leads to the title of Pharmaceutical Chemist. Likewise, under the Faculty of Medicine of Charles University in Prague, a four-year program leads to the Pharmacist Diploma. In 1947, 165 men and 102 women received this diploma.

### **Yugoslavia**

The University of Belgrade, at Belgrade, and the University of the Kingdom of Yugoslavia, at Zagreb, offer programs in pharmacy. The pharmacy course requires four years. Completion of this and passage of four diploma examinations leads to the title of Diploma-Pharmacist.

### **Rumania**

The Faculty of Pharmacy of the University of Bucharest offers a five-year program in pharmacy leading to the title Licentiate in Pharmacy. The pharmacy of Rumania appears to be largely here in the hands of women practitioners.

### **Bulgaria**

The Faculty of Pharmacy of the Academy of Medicine in Vulko Chervenkov, located in Sofia, offers two programs in pharmacy. One requires four years and leads to the Diploma in Pharmacy. Six months of this time is spent in a pharmacy. The other program is in the Medical Technical School of the same institution and is a three-year course leading to the title of Assistant Pharmacist. In this program two and a-half months are spent in a pharmacy. Instruction is in the Bulgarian language.



### **Greece**

The School of Pharmacy of the National and Capodistrian University of Athens offers a four-year course in pharmacy leading to the Bachelor of Pharmacy degree. All instruction is in Greek.

### **PHARMACEUTICAL EDUCATION IN EGYPT AND THE MIDDLE EAST**

### **Egypt**

Fouad I University, located in Cairo, has a School of Pharmacy which offers a three-year course leading to the degree of Bachelor of Pharmacy. Instruction is under the jurisdiction of the Faculty of Medicine. The curriculum places particular emphasis upon the Egyptian Pharmacopoeia. The Arabic language is used.

### **Turkey**

The School of Pharmacy of the University of Istanbul has a four-year program leading to the Pharmacist Diploma. Practical experience consumes 1½ semesters of the four-year period.

### **Syria**

In the Medical School at Damascus a four-year pharmacy program leads to the title of Pharmaceutical Chemist. Practical experience is gained concurrently. Instruction is in Arabic.

### **Lebanon**

The School of Pharmacy of the American University of Beirut has graduated more than 700 pharmacists who are practicing in Lebanon and the Middle Eastern countries. This School of Pharmacy instituted a four-year program in 1932 and has been accredited by the University of the State of New York for many years. Instruction is in English. In comparison with American colleges of pharmacy this School has the equivalent of a five-year course as admission requires the completion of our freshman year. This School has high standards and an excellent program. The Bachelor's degree is granted on completion of the pharmacy course. The School of Pharmacy was established here in 1873.

Also in Beirut is the Faculty of Medicine and Pharmacy of St. Joseph University. Here pharmacy instruction was instituted in 1889. Instruction is in French and closely parallels the program of the Faculty of Pharmacy in Paris. One year of practical experience is followed by four years of academic study leading to the Diploma de Pharmacien.

#### Israel

In 1953 the School of Pharmacy of the Hadassah Medical School under the Hebrew University in Jerusalem was established. Instruction is in Hebrew. The program involves four years of academic work followed by one year of practical experience.

#### Iraq

Name and location of school	Length of course in years	Degree or Title
Royal College of Pharmacy and Chemistry, Bagdad	4	B.Sc. 9 months of apprenticeship in summers. Pharmaceutical Chemist title is also given.

#### Tehran (Persia)

School of Pharmacy, Tehran University 4 Licentiate in Pharmacy  
Established in 1935. Pharmacy instruction is also given on the university campuses at Tabriz, Isfahan, Shiraz and Meshed. Instruction is in Iranian but most scientific terms are French.

### PHARMACEUTICAL EDUCATION IN ASIA AND THE PACIFIC

#### India

Name and location of school	Length of course in years	Degree or Title
Pharmacy Training Center Jalpaiguri, West Bengal	2	Diploma in Pharmacy 3 months experience in a dispensary or hospital is required.
Birla College of Science, Commerce & Pharmacy Pilani, Rajasthan	2 or 5	Diploma in Pharmacy or Bachelor of Pharmacy

Established in 1950		3 months practical in a dispensary or hospital is required.
L.M. College of Pharmacy Navarangpura, Ellisbridge Ahmedabad 9	4½	Bachelor of Pharmacy
Established in 1947 Department of Pharmacy Andhra University Waltair	5	Bachelor of Pharmacy
Established in 1951 Department of Pharmaceutics Banaras Hindu University	3 or	Bachelor of Pharmacy or
Established in 1932 University Department of Chemical Technology Matunga, Bombay 19	4½	Master of Pharmacy
Department of Pharmaceutics Medical College Amritsar, Punjab	6 3	B.Sc. Tech. (Pharmaceutics and Fine Chemicals) Bachelor of Pharmacy
Chemistry Department University of Saugar	3	Bachelor of Pharmacy
Established in 1952 University of Madras Madras Medical College Madras	3	Bachelor of Pharmacy

Instruction is in English in each of the above institutions. Before admission to the pharmacy curriculum a student has completed 10 years of elementary and secondary education followed by 2 years of college work up to the Intermediate Science degree.

### **Malaya and Singapore**

A School of Pharmacy of the King Edward VII College of Medicine in Singapore offers a one-year course in pharmacy which is followed by three years of apprenticeship after the Diploma in Pharmacy is granted.

The Royal University of Malta at Valletta, Malta, has a three-year program in pharmacy. The Diploma of Pharmaceutics is granted.

### **Indo-China**

The Faculty of Medicine and Pharmacy at Hanoi has a five-year pharmacy program leading to the Diploma of Pharmacy.

### Thailand

School of Pharmacy, University of     4     B.Sc. in Pharmacy  
Medical Science  
Located at Bangkok  
Women students greatly outnumber men.

### Formosa (Taiwan)

Department of Pharmacy, College of Medicine B.Sc. in Pharmacy  
National Taiwan University, Taipei

### China

Departments or Schools of Pharmacy are listed for the following universities or schools in China. Instruction is mostly in Chinese with English added in several institutions. Programs are 4-5 years long.

National Chekiang University, Hangchow*	Cheeloo University, Tsinan (Shantung Christian University)
National Peking University, Peiping	Chekiang Provincial Medical College, Hangchow—50% of Chinese pharmacists graduated here.
West China Union University, Chengtu	Fukien Provincial Medical College, Foochow*
National Chungcheng Medical College, Nanchang	National Medical College of Shanghai, Shanghai
National Kweiyang Medical College, Kweiyang	
Mukden Medical College, Mukden	
French Chinese University, Shanghai	

\*Grant Bachelor of Pharmacy Degree.

### Korea (Chosen)

Pharmacy instruction is listed for the following institutions:

Pusan Liberal Arts and Sciences College, Chinju	Korean language is generally used.
Sook Myung Women's College, Seoul	
Sung Kyun Kwan College, Seoul	
Seoul Pharmaceutical College	
Ewha Women's University, Seoul—grants B. S. Degree	
Seoul National University, Seoul	

### Japan

The following institutions have Faculties or Departments of Pharmacy. The courses are each four years in length. Instruction is in Japanese. Unless otherwise specified they are national institutions.

Chiba University, Chiba City	Osaka Pref. (Private)
Tokyo University, Tokyo	Kobe Women's University of Pharmacy (Private)
Kanazawa University, Kanazawa City	Kyoto University of Pharmacy, Kyoto City (Private)
Toyama University, Toyama City	Tohoku Pharmaceutical College, Sendai City (Private)
Kyoto University, Kyoto City	Nihon University, Tokyo (Private)
Osaka University, Osaka City	Hoshi College of Pharmacy, Tokyo (Private)
Kyushu University, Fukuoka City	Toho University, Chiba Pref. (Private)
Nagasaki University, Nagasaki City	Tokyo College of Pharmacy, Tokyo (Private)
Tokushima University, Tokushima City	Kyoritsu Pharmaceutical University, Tokyo (Private)
Shizuoka College of Pharmacy, Shizuoka City	Kumamoto University, Kumamoto City (Private)
Gifu College of Pharmacy, Gifu City (Public)	Meiji Pharmaceutical University, Tokyo (Private)
Nagoya City University, Nagoya City (Public)	
Showa Pharmaceutical University, Tokyo (Private)	
Osaka Pharmaceutical University,	

### Philippine Islands

Instruction is in English. The courses in pharmacy are four years in length and lead to the Bachelor's Degree. With the exception of the first institution listed, which is under the State, the schools are under private management. The following institutions have colleges or schools of pharmacy:

University of the Philippines, Quezon City (is a member of the AACP)  
 University of Santo Tomas, Manila  
 National University of Manila, Manila  
 Adamson University, Manila  
 Philippine Women's University, Manila  
 University of San Carlos, Cebu City  
 Centro Escolar University, Manila

The following private institutions are listed as offering work in pharmacy according to the office of the Secretary

of the Department of Education, Manila, but no details of their curriculums have been ascertained.

Southwestern College, Cebo City  
University of the Visayas, Cebo City  
Iloilo City College, Iloilo City  
Holy Ghost College, Mendiola  
Immaculate Conception College,  
Davao City  
Occidental Negroes Institute,

Bacolod City  
Harvardian College, Davao City  
Luzonian College, Lucena  
Lourdes College, Cagayan de Ore  
Manila Central Univ., Zurbaran  
University of San Augustan,  
Iloilo City

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ARTHUR E. JAMES, *Chairman*



## **Report of the Joint Committee on the Status of Pharmacists in Government Service\***

Meeting of the Steering Committee—at the Institute of Pharmacy—Washington, D.C. on Wednesday, March 31, 1954 at 2 P.M. Present were Royce Frazoni, George H. Frates, Dr. Noel Foss, Dr. Robert P. Fischelis, Arthur H. Einbeck; Guests were Directors George Archambault and Thomas Foster of the United States Public Health Service, Colonel Bernard Aabel and Lt. Colonel Henry D. Roth, Medical Service Corps, United States Army.

The Committee reviewed the Bill H.R. 5509—recently passed by Congress and signed into law by President Eisenhower on March 23, which erased from the law setting up the Medical Service Corps, the discrimination in promotion to the rank of Colonel. It was noted that the Air Force does not require a parallel change in the law, since its Medical Service is organized on a non Corps basis. However, by the passage of this law the nondiscrimination in the Army would eliminate the possibility of an adverse ruling in the Air Force at some future time.

It was noted that the discrimination against professional pharmacists still exists in the Navy with regard to promotion to the rank of Captain. The Committee will continue to keep this situation, as well as the fact that there is still no provision in the law for promotion to the rank of General, or in the Navy to Admiral, in its sights. The Steering Committee feels that this matter of providing a General for the Medical Service Corps of the Army should be an early consideration of the Surgeon General and that the Committee should encourage, or if necessary initiate, legislation to correct this defect in the military structure. It is pointed out that the numerical officer strength of the Medical Service Corps is such that it should provide an officer with the rank of Major General to head the

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\*The Committee represents the National Association of Retail Druggists, the National Association of Boards of Pharmacy, the American Pharmaceutical Association, and the American Association of Colleges of Pharmacy.

Corps, and a Brigadier General for the larger Sections and administrative divisions.

In the light of information available it was deemed advisable to review the pharmaceutical progress in the Army. It was noted that the organization chart for Class 2 Army Hospitals do not show a pharmaceutical service similar to that noted in the organization structure of the United States Public Health Hospitals. The operation of the military hospital's pharmacy service seems to justify the use of commissioned officers at all pharmacy functions excepting those of a menial nature. The Chief Pharmacist of a pharmacy such as is operated at Walter Reed Hospital or comparable installations could well be a full Colonel or at least a Lt. Colonel, assisted by pharmacists of lower officer ranks to that of Second Lieutenant, instead of being operated by men of enlisted ratings which is customary, in most instances, at this time. The Committee wishes to emphasize the following facts related to personnel practices in the Army. (1) That the fine degree of pharmacy service that exists in most instances is due to the fact that these positions are held by inducted graduates of Colleges of Pharmacy who are providing this pharmacy service in the enlisted ranks from private 1st class to master sergeant; (2) that it would be impossible to attract this type of man to the Service unless rank is offered commensurate with the education of the man. (3) Thus, with the abolishment of Selective Service, which may happen, the pharmacy service of the Armed Services will suffer, unless opportunity is offered for Career Pharmacists to remain in the Service. It is pointed out that in the United States Public Health Service every pharmaceutical function is carried out by either a commissioned pharmacist or a civil service civilian pharmacist. This does not preclude the use of pharmacists serving in billets involving supply, supply planning, administration and wherever their skills can be utilized.

Some things deemed important by the Committee were.

- (1) Frequent visitations of all pharmacy installations throughout the world by the Chief of the Pharmacy, Administration and Supply Section of the Medical Service Corps.
- (2) Arrangements to be made for pharmacy officers to at-

tend courses leading to a degree in Hospital Administration, or where pharmacy officers are in supply that those qualified be considered for Business Administration graduate courses.

(3) Continuing studies being made on how the pharmaceutical service of the army can be expanded, with improved and broadened functions for the Medical Service Corps, that might include those duties and responsibilities now carried on by other Corps, within the Medical Department of the Army, where there is a continuing shortage of personnel, such as in the Medical and Nurse Corps. Executive, administrative and supply functions of the medical corps now done by physicians and sterilization and laboratory procedures now carried on by nurses are examples where the Medical Service Corps personnel could relieve more people for medical and nursing functions.

The Pharmacy Reserve Officer Training Corps situation was reviewed. It has been ascertained that two of the Universities now having a Pharmacy ROTC unit, namely Minnesota and California are going on a Branch General program.\* This will eliminate all special ROTC units such as pharmacy, medical, etc. Wisconsin and Ohio State Universities have not as yet accepted the Branch General program and they will continue the Pharmacy ROTC for the time being. It is generally felt that ultimately all colleges will be on Branch General or without ROTC. The general feeling of the Army is that Branch General program will build better officers and will make for a more satisfactory program. All pharmacy students at universities having ROTC can take the Service training course leading up to a commission as Second Lieutenant in the Reserve Corps. During their summer training period they may select the camp which will complete their

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Since the Steering Committee met at its March 31 meeting we have learned that the University of California will retain its Pharmacy ROTC Unit. Even though the University has accepted the Branch General ROTC program because of the fact that the College of Pharmacy is too far removed from the University. This would make it impractical for the pharmacy student to go to the University for their ROTC. However, no similar situation exists at the University of Minnesota so it seems probable that the pharmacy students there will have to take the Branch General program as reported. I understand however that Dean Rogers has asked for a reconsideration of this change. The Surgeon General has assured us that he would approve the change but general staff policy may insist that the Branch General program be carried out throughout the University. I might add that this Committee has asked for a continuation of the Pharmacy ROTC units as originally constituted.—A.H.E.

training as potential Medical Service Corps officers. If vacancies exist, (which they generally do) they will be commissioned in the branch of service they select. There is some difficulty in adjusting the course of the pharmacy student so that he might fit in with the College ROTC program. This is largely due to the fact that the pharmacy students program is quite crowded and that the ROTC program requires 5 hours of work a week. This will require study of the ROTC Schedule by the Deans of the Colleges of Pharmacy and some effort being made to fit the pharmacy instruction in with the military program. Deans of the Colleges of Pharmacy will have to initiate discussions with the Department of Military Science and Tactics of the University of which their College of Pharmacy is a component. That this program has reached some degree of popularity is indicated by one of the smaller western universities, the college of pharmacy having fifty of its students preparing for a commission as Second Lieutenants in the MSC. It might be further added the Regular Army commissions are available only to pharmacists who are reserve officers who are presently serving and who have had 18 months or more of active duty. The Service offers a worth while career at a startling annual salary of \$4062.96 for a second lieutenant to \$10,930.32 at the grade of Colonel. College Deans can well place the Services among the desired career patterns for pharmacy graduates.

It was ascertained that at the present time, through ROTC, or making application for a reserve commission through the local civilian component reserve officers training unit, is the only place that active duty as an officer can be experienced on the initial entry into Service. At the present time, all pharmacists, who are not ROTC graduates or Reserve Officers must come in the service as enlisted men.

Officer Candidate Schools have been closed because of the recent reduction in the military program. It is well for pharmacists who are anticipating going into active service, (if they are not reserve officers) to explore the possibilities of obtaining a reserve commission through the local reserve officer training group. A great number of vacancies in these units now exist and, pending a change in regulations, might

be the only source of obtaining a reserve commission. It is well to note however that a pharmacist entering the service as a reserve officer is not likely to perform pharmaceutical duties. He would be more than likely assigned to a combat unit's medical detachment, which would be a rich experience. Should he enter the service as an enlisted man, he would more than likely be assigned to a pharmacy in one of the military installations. Should there not be a vacancy he will probably be given technical training in some medical technical specialty, laboratory, medical, X-ray technician or something allied thereto. An experience likely to be valuable to any pharmacist after he leaves the service to practice his profession.

However, this is one of the problems we want to discuss with the Surgeon General since it seems rather a paradox that pharmacists are commissioned in the service to perform many duties for which they are well qualified but that in the practice of their profession, other than general supervision as MSC officers, do not merit a commissioned rank on the tables of organization. It has been pointed out that a nurse, and dentist working in a purely professional capacity is commissioned. The only real reason given is that those commissions are given because there is a scarcity in these two professions as far as the Service is concerned. The question bears further study.

As a result of our deliberations it was regularly moved and passed that a small committee call upon the Surgeon General of the Army to see whether corrective measures can be initiated within the Department of the Army or will have to be initiated by the Committee through the introduction of appropriate legislation. The points to be brought up are:

- (1) The provision of the ranks of Major and Brigadier Generals for the Medical Service Corps.
- (2) The establishment of commissioned rank for all of the various pharmaceutical functions in the Army including dispensing.
- (3) The broadening of responsibilities of the Chief of the Pharmacy, Administration and Supply Section so that he visit military pharmacy installations all over the military world, makes the

necessary inspections and then makes recommendations. This will bring all installations to the high standard enjoyed by some and of which Walter Reed pharmacy is a glowing example. (4) That graduate programs be established at the various colleges near military installations and others to where pharmacists may be assigned for graduate instruction so as to bring them up abreast of or refreshed in the latest developments of their profession. Some of these courses need only to be of 1 semester duration; others may require longer attendance. (5) The raising of the status of pharmacy to that of a "service" in the larger military hospitals. (6) In what way can we best cooperate with the Service in attracting to the Service pharmacists on a career basis.

### **The Public Health Service**

Director George Archambault of the United States Public Health Service brought the group up to date on Pharmacy Activities in the USPHS. There are 69 pharmacists utilized in its various programs. 59 are commissioned and 10 are civil service. They serve in hospitals, clinics, quarantine and supply stations, prisons, state health services, Indian affairs clinics, clinical centers and in the office of the Surgeon General. The USPHS has issued a basic formulary for use by its own hospitals and clinics. They have an intern program that is continually recruiting replacements or additions to the staff. Lectures are given on request of Deans to students on USPHS as a career. Much of the recruitment is done by close cooperation with the Deans of the Accredited Colleges of Pharmacy. Ten additional pharmacists are to be assigned to the Indian Affairs Pharmacy Branch.

Director Thomas Foster is designed Chief of Civilian Health Requirements. This work is principally planning for Civilian needs during mobilization and is located in the office of the Surgeon General. He is the liaison officer as well to civilian industry, a significant step forward for pharmacy since it is the first time that a pharmacist has served so close-



ly to the Surgeon General. At the Bethesda Clinical Center a Senior Pharmacist is in charge of the pharmaceutical service which includes the Sterile Supply department. In general only commissioned pharmacists serve in the pharmacy functions within the Public Health Service. Subprofessional assistants are in the grades of Pharmacy Helper and Store Keeper, Clerk typists and laborers and they perform no pharmaceutical duties of their own responsibility.

The Internship program is continually kept in the minds of the College Deans by their receipt of information sent out by the office of Director Archambault, and by the reports of this Committee to the Annual Conventions and through the medium of occasional reports. Applications of senior students applying for internships are held for 1 year, and serve as a source for filling vacancies. At present there are three internships available each year but this will eventually be increased to seven. These interns are given a special training program and have an opportunity to compete for vacancies in the Regular Service, or may elect to stay in the Reserve Corps on an Active or Inactive Duty status, to serve in time of national emergency. The Director of the Pharmacy Branch, Division of Hospitals sent a letter to the Deans of the Class A accredited colleges in January of this year calling attention to the one year hospital internship which will be available commencing July 1. The successful applicants are commissioned as Ensigns in the Reserve and upon being assigned to active duty are paid at the rate of \$4062.96 per annum, if unmarried, and have had no previous military service. Further information by those interested can be obtained by writing Director George Archambault, c/o the Surgeon General, USPHS—Washington 25, D.C.

Before adjourning the Steering Committee agreed that the next step would be to arrange an informal meeting with the Surgeon General of the Army.

The meeting adjourned at 5:30 P.M.

ARTHUR H. EINBECK, *Chairman*

## **Report of the Committee on the Status of Pharmacists in the Government Service**

Your Committee on Status of Pharmacists in the Government Service will restrict the content of its report to a brief recital of what has happened re Pharmacy ROTC during the past year and refer all interested members to the Report of Major Einbeck for information as to the situation in other branches of Government Service. Also, a published article\* by Lieut. Col. Roth, includes data on number of Pharmacists on active duty in Medical Service Corps assignments, etc.

Fully appreciating that any policy of the Department of the Army was formulated in the interest of our national safety, health and welfare, and that in providing for the Pharmacy ROTC, it was recognized that it was difficult to train a young man to be a good officer in one 50-minute period a week for 4 years plus summer camp, your Committee is of the opinion that Pharmacy in the Army is on the "skids." A review of the curricula of the universities having a Pharmacy ROTC shows that the 3 hours per week in basic Branch General and the 5 hours per week in the advanced could not be added to the present schedule unless the hours for academic electives were devoted to ROTC. Well do we remember when Pharmacy gained recognition in the form of a Corps in 1943. The Pharmacy Corps was abrogated and a Pharmacy, Supply and Administrative Section of the Medical Science Corps established. Also a Branch Material Curriculum in Pharmacy at 4 of our state universities was set up. Now we have been officially notified that any one of these 4 universities that has acceded to the policy of the Department of the Army to convert from Branch Material Curriculum to the General Military Science Curriculum, the Pharmacy ROTC will be abrogated as soon as those now enrolled in the Pharmacy ROTC complete their work and are commissioned 2nd Lieutenants

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\*The Military Surgeon, July, 1954.

in the MSC Reserve. Briefly, we're back just about where we were before the establishment of the Pharmacy Corps by Congress in 1943. From reliable sources, I have been informed that those universities that do not convert from Branch Material Curricula to the General Military Science Curriculum will not only lose their Pharmacy ROTC but also all Material Curricula. Having in mind our national defense, particularly insofar as specialists are concerned, this would appear to be ridiculous. Abrogate our specialized training both at the undergraduate and graduate level and our country is lost professionally and scientifically. Russia recognized this many years ago and, I am told, took immediate steps to correct this deficiency in trained scientific and professional manpower.

So far, our report has seemed to be an expression of your Committees' difference of opinion with the policy of the Department of the Army insofar as the abrogation of Branch Material Curricula is concerned. Possibly the change is a wise one, but in the exercise of defense-wisdom and the reorganization, Pharmacy has been progressively "kicked down stairs" and, subject to correction on the basis of more intelligent assignment of pharmacists in the Army, we are just about back to our original status. Your Committee is an informative one and any recommendations for checking our "slide" should come from the floor. Personally, we don't believe any resolution from the AACP would do very much good. However, maybe an effort such as was made by the late Dean Kendig in Congress should be considered. Your Committee submits data and without recommendation.

The total enrollment in Pharmacy ROTC beginning the fall term 1953-54 was 439: Wisconsin 159, Ohio State 61, California 139, and Minnesota 80. Except insofar as assignments for 2nd Lieut. Reserve Officers, your Committee is of the opinion that students trained in our "late" Pharmacy ROTC units and licensed pharmacists enlisting or drafted into the service, are steadily going down the ladder of recognition for Pharmacy in the Army, and that your recommendations be made to the Committee as to what to do about it with provision for expense connected therewith. The latter part of

the recommendation, of course, should be referred to the Executive Committee.

In our report, the Chairman has not referred to the situation at the University of Minnesota because it has been confusing to say the least. The University of Minnesota has committed itself to Branch General—this without the advice of the Dean of the College of Pharmacy and without his being informed as to the implication re Pharmacy ROTC. Since we have learned that by conversion to Branch General all other Branch Material curricula would be abrogated, a request for reconsideration has been submitted by the Central Administration. There is no reason why Minnesota Pharmacy ROTC should be discontinued when Wisconsin and Ohio State, which have not committed themselves to Branch General, and California, which is in a peculiar situation (the medical center being distance-wise separated from Berkeley, (committed to Branch General) should retain their Pharmacy ROTC units.

According to a letter from Dean Daniels, General Dean, speaking for the 6th Army, has indicated his desire to retain the Pharmacy ROTC unit and has submitted such a recommendation to Washington. Dean Daniels stated he had no way of knowing what the outcome would be of such recommendation.

In reply to the request for reconsideration by the University of Minnesota, Lieut. General Kean replied that it was the policy of the Department of the Army to discontinue Branch Material at those universities that had committed themselves to Branch General. We have no basis for predicting what the decision will be on our request for reconsideration.

Since dictating this report, a reply to my request in the letter sent to the Adjutant General under date of July 15, 1954, for reconsideration of Pharmacy ROTC at the University of Minnesota has been received.

General Klein's letter gives us more additional information than that had by us but in the second from the last paragraph of his letter, it is stated that: "For the reasons cited above, I regret that your proposal that the Pharmacy unit be retained at your institution after conversion to the General Military Science curriculum, may not be favorably consid-

ered." In a telephone conversation with the Vice President in charge of our ROTC matters at the University of Minnesota, he informed me that Branch General was adopted by the University of Minnesota provided that at all other universities acceded to Branch General, the Pharmacy ROTC would be abrogated. Wisconsin and Ohio State have not committed themselves to Branch General. However, the University of California at Berkeley has done so and even if the medical center of the University of California is part of the University of California, we believe that the exception in this case released the University of Minnesota from any commitment that it has made. Every day students come to our office to register for Pharmacy ROTC. They evidence no interest in registering for the Branch General program.

Had your Committee been advised as to the effect upon any one of your Pharmacy ROTC schools because of conversion from Branch Material to Branch General, we would have taken action. The Dean at Minnesota was not advised by the University or the Adjutant General's Office that the Branch General had been adopted by the University and not until such information had come to us a month or so later and then by a circuitous route, were we in a position to request reconsideration of our status. Dean Christensen, in a letter of July 2, 1954, to General Chairman Einbeck, takes a definite stand on the abrogation of Pharmacy ROTC. Dean Christensen commented particularly about page 2, Einbeck to Christensen, and apparently did not concur.

Let us face a few facts: If the master minds in the Surgeon General's Office believe that professionally well-trained pharmacists are unnecessary to our national defense organization and/or that a sufficient number of drafted or enlisted personnel can be obtained to take care of the pharmaceutical needs of our armed forces, it is about time that Pharmacy quit trying to force its way into the professionally commissioned ranks. We, as pharmacists, either are needed in a complete medical service or we are *not* needed. As we see it, the Surgeon General's Office is to give the answer. If enlisted and drafted pharmacists can "fill the bill" for adequate pharmaceutical service in the Army, then we had better ac-

cede to the abrogation of our ROTC units and, as was implied in Col. Black's address to the graduating class in MSC last year at Fort Sam Houston, get our "Pharmacy" officers from General ROTC. If we are not needed, why try to force our way in just because you and I want professional recognition. Apparently, the number of licensed pharmacists, enlisted or drafted into the service is adequate to take care of army needs. The big question seems to be: Should Pharmacy try to butt its head against a stone wall when we or our services are not needed? Pharmacy's flag should always fly but never higher than that which provides for our national welfare and defense. A very important question. Just how important are pharmaceutical services not only to our boys in the service but to our national defense? If Pharmacy or pharmaceutically-trained personnel is unimportant, we'd better forget our struggles. If important, as adjudged by qualified Army and civilian authority, Pharmacy as a whole should take steps to see that measures be taken to get that recognition.

Pharmacy—real pharmacy—has a small place in the Army as of now.

The personnel required for such work in our Army Hospitals is relatively small and that one commissioned pharmacist is adequate and can be used effectively at Class 2 Army Hospitals (Walter Reed, Brooke, Letterman, etc.) do full-time pharmacy duty. It would appear that in the Medical Service Corps field at present, management, budget, and administration, is receiving more attention than professional service. It can but be concluded that any commissioned pharmacist with any background in these fields should apply for assignment to them in order to be in an advantageous position for advancement in the Medical Service Corps. The personnel required for such work in our Army hospitals is relatively small. There are some places for Supply Officers in the Pharmacy Supply and Administration Section of the MSC and as near as we can determine, graduates of Business Administration accountants, lawyers, etc. have greater opportunities in the MSC than have graduate licensed pharmacists.



If percentage-wise pharmacists are so outnumbered by other non-professionally-trained persons and that the number of the former can be procured from enlisted and drafted personnel, it would seem that we are expending a great amount of energy to get a very small niche in the hall of Army recognition.

In conclusion: Your Committee is determined, but weary, in trying to get what it believes a rightful place for our boys. It will keep on trying.

CHARLES H. ROGERS, *Chairman*

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## **Report of the Committee on Civil Defense Education**

The Committee made a survey of the Colleges of Pharmacy that are members of the Association in order to determine to what extent the recommendations for the establishment of a course in Civil Defense Education had been followed by the various institutions concerned.

The survey essentially consisted in determining in each of the member institutions whether the recommended or a similar course in Civil Defense Education had been newly established or had been continued on a preexisting basis. The questionnaire concerned itself with the availability of a course consisting of lecture, laboratory and practical demonstrations or applications in the community.

Fifty-four replies were received in response to seventy-six questionnaires sent to the various colleges. Of these fifty-four who responded, fourteen were giving the complete course as recommended. An additional fourteen were giving only a lecture and laboratory course in First Aid. Five gave only lecture courses. Three gave only practical applications in the community. One gave lecture and community applicatory exercises.

Seventeen of the institutions were giving no courses or training of any type in Civil Defense Education.

Several of the institutions indicated that they contemplated the addition of comparable programs in the next one to two years. A few did not apparently consider the program of sufficient importance to place it within their curricula and one described it as "not of college level" in explaining the failure to include such a program.

It is particularly worthy of note that several of the institutions objected to the wording of the questionnaire particularly where it used the term "directed all colleges to establish a course in Civil Defense Education comparable in scope, content and arrangement."

The objection was to the use of the word directed, it being stated that the AACP had no power to direct and was simply in a position to make suggestions and provide a guidance.

This correction was readily accepted by the Committee Chairmen and it was noted that at the time of the passage of this resolution in 1953 it had definitely been stated, that it consisted in effect, of establishing an amendment to the syllabus now unofficial, or to the recommendations of the curriculum committee, and since these need not be followed verbatim, no greater necessity existed for the establishment of this program than for any other course listed by these agencies.

However it was also pointed out that if the AACP provided no capacity for "persuading" the various member colleges to follow a set course of action, we would find considerable difficulty in explaining the time and effort which had been given to the work of this organization and to the various enterprises which it sponsors.

Several institutions have made requests for the titles of additional literature which might be available on this subject and the Committee desires to recommend to these institutions

the pamphlet provided by the American Council on Education which is entitled *Civil Defense and Higher Education*.

Copies may be obtained without charge from the American Council on Education 1785 Massachusetts Avenue, N.W., Washington 6, D.C.

The Co-Chairmen desire to extend their appreciation to the various member colleges that responded to this questionnaire.

WILLIAM V. STILES, JAMES H. KIDDER, *Co-Chairmen*

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## **Report of the Committee on Predictive and Achievement Tests**

Concern about the high (40 to 50 per cent) loss of pharmacy students during their first year as freshmen prompted the Committee on Predictive and Achievement Tests to undertake as its project for this year a survey of the member schools to determine the extent of this problem and assemble related data.

On June 17 a simple questionnaire was mailed to each of the 73 member colleges located in the United States. Fifty nine (80.8%) usable completed forms were received before July 20. In accordance with a statement on the questionnaire specific schools are not identified in this report.

### **Loss of Freshmen**

It is recognized that scholastic failure is not the only cause for the discontinuance of a student's education in pharmacy; there may also be a change of mind concerning career, military induction, disciplinary action, etc. However, it was not considered feasible to collect complete data in this category. It is sufficient to consider that each discontinuing student represents discouragement and a waste of time and funds.

Each school reported the number of freshmen admitted in September of 1952, the number of applicants for that class, and the number of the same students continuing in the class a year later. The loss of students varied from 4.6% to 57.2%.

When the schools were arranged in order of decreasing losses and divided in thirds the following averages were obtained:

	Percentage of students not continuing second year	Ratio of applications to admissions
15 schools of high loss.....	46.2%	1.62
15 schools of medium loss.....	28.4%	1.77
16 schools of low loss.....	16.2%	1.85
Average .....	30.0%	1.75

There seems to be a slight correlation of student scholastic success with numerical selectivity, but the following analyses tend to discount this opinion.

When these schools were classified according to size as small if the number of new students, both freshmen and transfers, was less than 50, medium if the number of new students was between 51 and 89, and large if more than 90, the following averages were obtained:

12 small schools .....	35.2%	1.52
19 medium schools .....	30.2%	1.52
15 large schools .....	25.6%	2.27

In general terms large schools have greater selectivity of students, and students' success is better.

When the schools were classified by geographical area, the following averages were obtained:

15 Southern schools .....	34.7%	1.45
12 Central schools .....	34.7%	1.65
12 Northeastern schools .....	24.0%	2.45
7 Western schools .....	22.2%	1.37

Student success is better in the separated areas of the Northeast and the West where, paradoxically the competition for admission is the best and the poorest respectively.

#### Minimum Admissions Requirements

Information was requested concerning minimum scholarship or class standing in high school required for admis-

sion to the pharmacy school. Frequently there was a higher requirement for out-of-state applicants. In such cases, only the in-state requirement was tabulated. The following table shows the number of schools as reported:

Scholastic requirement	Schools of high loss	Schools of medium loss	Schools of low loss
75, upper 4/5 .....		1	2
80, upper 2/3 .....	1	2	
C .....	3	1	2
C+, upper 1/2 .....	5	5	4
upper 40% .....	1		
B, upper 1/3 .....	1		
Total reporting .....	11/15	9/15	10/16

More schools report definite minimum standards and also higher requirements in reverse order of student success. These data are probably an indication of a good effort to reduce the high loss of students.

#### Other Admission Considerations

Each school was requested to indicate which of the listed auxiliary data were also considered before deciding admissions. They are listed in order of decreasing usage. The number of schools reporting in the affirmative are given:

Auxiliary admission data	Schools of high loss	Schools of medium loss	Schools of low loss
Required personal interviews..	7	11	10
Aptitude test before admission	8	10	10
Recommendations .....	9	11	13
Relatives in pharmacy .....	2	1	3
Experience in pharmacy .....	1	1	1

The more successful schools make slightly greater use of auxiliary admission factors. There is a general disregard of heritage and pre-college experience in pharmacy.

In two schools personal interviews were required only if considered necessary, and in three schools aptitude and achievement tests prior to admission were required only in doubtful cases. Six schools specified that they gave consideration to recommendations from high school officials and one specified that it considered recommendations from former employers.

There was some variation in the battery of tests required before admission. While general aptitude, mathematics, and English were generally used, one school specified the addition of arithmetic, one arithmetic and figure matching, and one chemistry. It appears to be a safe assumption that a specific examination to determine aptitude for pharmacy would be most welcome and widely used.

#### Transfer Students in Schools Accepting Freshmen

The numbers of admissions, applications, and survivals of transfer students accepted in September of 1952 were obtained. There were many striking discrepancies in the student success percentages as compared with freshmen success in the same schools. For example, schools which had a loss of transfer students less than 10% lost the following percentages of freshmen: 9.6, 15.6, 24.7, 27.0, 33.4, 39.3, and 43.4. At the opposite extreme a school which lost only 13.8% of its freshmen lost 57.2% of its transfer students during the same year.

Maintaining the original classification based on loss of freshmen, the following averages were obtained for transfer students:

	Percentage of transfers not continuing a second year	Ratio of applications to admissions
Schools of high freshmen losses	37.5%	1.49
Schools of medium freshmen losses .....	18.5%	1.53
Schools of low freshmen losses	20.9%	1.87
Average .....	25.8%	1.62
12 small schools .....	31.3%	1.35
15 medium schools .....	21.5%	1.50
11 large schools .....	31.3%	2.14

Averages in the first grouping show that transfer student success is parallel with freshman success insofar as group averages are concerned, and transfer success is proportional to applicant competition. However, the numerous exceptions and the second grouping by school sizes indicate that averages are not reliable indices of performance in specific schools.



### Transfer Students in School Not Accepting Freshmen

Reports were received from eleven schools accepting only transfer students with a minimum of not less than one year of collegiate pre-pharmacy. Of these, eight included admission numbers. The loss of transfers during the first year varied from 8.7 to 57.2%. The four schools with best student success were large schools, and the four with poorest student success were small schools.

Two reports were received from schools admitting only students with a minimum of two years of collegiate pre-pharmacy.

The averages for these two types of schools were as follows:

	Percentage of transfers not continuing a second year	Ratio of applications to admissions
8 schools requiring one year of pre-pharmacy .....	22.9%	1.29
2 schools requiring two years of pre-pharmacy .....	11.3%	1.23

Undoubtedly, student success is better for students with collegiate pre-pharmacy study. It is not surprising that competition for admission is less because it may be assumed that some aspirants have been self-eliminated. It is perhaps surprising and disappointing that the success of transfer students is not appreciably better than the reports show.

### Admission Requirements for Transfer Students

The minimum college scholarship averages acceptable for admission of transfer students were reported as follows:

	75	80	C	C+	B
46 schools also accepting freshmen.....	1	1	21	5	1
11 schools requiring minimum of 1 year pre-pharmacy .....			9	2	
2 schools requiring minimum of 2 years pre-pharmacy .....			1	1	

A C-average is the most general requirement. That grades vary in different areas of the United States is apparent from the discrepancy between stated requirements and scholastic success. For example, the school requiring only a 75 average has a student loss of only 14.3%. It is known that college (and high school) grades are generally low numerically in that area.

It is surprising to learn that many schools do not specify the subjects required during the pre-pharmacy college studies. It is difficult to believe that an applicant could be accepted who had not completed general chemistry, but such appears to be the case. Required pre-pharmacy subjects are not specified in nine of the schools which also accept freshmen and in one of the schools which accept only transfer students.

#### **Comprehensive Examinations**

Only seven of the 59 reporting schools require comprehensive examinations. Several answers stated that the board licensing examinations were considered sufficient. One answer was the comment that pharmacy was the only school in its university which did not require a comprehensive examination.

In five schools the minimum passing grades were reported as follows: 50, 65, 70, 75 and 75. In each school the penalty for failure was non-graduation and in four of these schools the student was allowed a second opportunity from six to twelve months later to pass the examination. In the seventh school there was no stated minimum passing grade, but the student's grade was considered as a partial basis for graduation with a possible penalty of repeating the work of the fourth year.

It appears that there is no great interest in comprehensive examinations as represented in the last half of the name of this committee.

#### **Concluding Remarks**

If this report has any value, it is probably along these lines: 1) The general problem of high student failure rates is called to attention, 2) Data is tabulated for study and comparison in individual schools, and 3) Increased efforts toward better student selection will lead to better methods which can be discussed and adopted where needed.

Correspondence within the committee has resulted in agreement that the chairmanship should preferably be rotated. This recommendation has been given to the proper officials.

# STUDENT FAILURE AND ADMISSION DATA

Freshmen direct from high school.....Transfer students.....

Percentage not continuing second year	Applications to admissions	Minimum admission requirements	Interviews	Aptitude and achievement tests	Pharmacy experience	Relatives in Pharmacy	Recommendations	Percentage not continuing a second year	Applications to admissions	Minimum admission requirements	Pre-pharmacy subjects specified
57.2	1.50	Grad						43.5	1.50	C	
54.6	1.14	C, 16 units	no	yes	no	no	yes	66.7	1.17		no
53.5								not usable			
50.0	1.66	upper 1/2	no	yes	no	no	no	33.4	1.50	C	yes
50.0	1.00	Grad	yes	yes				21.5	1.21	C	yes
44.8	3.33	upper 40%	yes	if	no	no	HS	42.9	3.14		
44.5	1.44	grade 80	yes	yes	no	no	yes	37.5	1.31	80	
43.5	1.30	upper 1/2	no	no	no	no	HS	20.0	1.50	C +	
43.4	1.00	C, 15 units		no	no	no	no	71.5	1.00	yes	no
43.4	1.67	C	if				yes	42.9	1.57	C	yes
43.4	2.08	upper 1/2	yes	yes	yes	yes	no	6.7	1.67	C	yes
42.9	1.67	C +, upper 1/2	yes	if	no	no	yes	26.7	1.40	B	
42.6	1.28	upper 1/2	no	if	no	no	yes	50.0	1.17	C	no
40.7	2.25	B	yes		no	yes	yes	24.0	1.20	C	yes
39.3	1.34							0.0		C	yes
37.7	3.89	Grad, 75	yes	yes	no	no	yes	25.0	1.88	None	yes
33.4	1.33	15 units	no				yes	0.0	1.00	C	no
32.5	1.00	yes	no	no	no	no	no	28.6	1.25	C	no
32.3	1.58	upper 2/3	no	yes	no	no	yes	26.1	2.17	C	
32.0	2.23	upper 1/2	yes	yes	no	no	if	16.7	1.25		
31.8	1.44	upper 3/4	yes	yes	no	no	yes			C +	no
27.3	1.27	yes	yes	yes	yes	no	yes			C +	yes
27.2	2.26	Grad	yes	yes			HS + not accepted				
27.0	1.75	C or 75	yes	yes	no	no	yes	0.0	1.75		
25.0	1.14	upper 1/2	yes	no	no	no	no	36.4	1.14	C	
24.7	1.51	varies	yes	yes	no	no	yes	6.7	1.67		yes
24.6	1.32	Grad		yes				15.4	1.38	C	yes
23.9	2.02	upper 1/2	if	no	no	no	no	20.0	1.67	C +	yes
23.9	2.38	75, upper 1/2	yes	no	no	yes	yes	12.5	1.88	C +	yes
23.4	1.50	upper 1/2	yes	yes	no	no	yes	35.3	1.35	C	no
22.9	1.40	upper 4/5	yes	yes			HS	20.0	1.75	C	yes
22.5	1.38	C	no	no	no	no	HS	17.7	1.18		
22.1	1.16	yes	yes	yes	yes	yes	yes	not accepted			
20.0	1.81	upper 1/2	yes	yes	no	yes	no	33.4	2.50	C	yes
19.7	1.71	yes	no	no	no	no	no	17.2	1.43	C	yes
19.6	1.22	C +	yes	no	no	no	no	12.5	1.38		no
18.6	1.14	yes	no	yes	no	yes	yes	none admitted, 1952			
17.7	4.06	75	yes	no	no	no	no	14.3	1.79	75	yes
15.6	1.21	Grad	yes	yes	no	no	no	9.6	1.43		yes
15.4	1.73	upper 1/2	yes	yes	no	no	yes			C +	yes
15.0	1.44	C		no	no	no	yes	15.0	1.67		no
13.8	2.03	upper 1/3	yes	yes			yes	57.2	4.64		
13.6	1.22	Grad	no	yes	no	no	no	31.6		C	yes
9.6	1.90							0.0	1.67	C	yes
8.7	3.56	upper 1/2	yes	yes	no	no	no	28.6	2.14	C	
4.6	2.59	upper 1/2	yes	yes	no	no	no	15.0			

Schools requiring a minimum of one year of collegiate pre-pharmacy:

57.2	1.00	C	yes
37.5	1.19	C	yes
22.8	1.00	C	no
15.4		C	yes
14.5	1.39	C +	yes
14.3	1.78	C	yes
12.7	1.11	C	yes
8.7	1.55	C	yes
		C	yes
		C +	yes

Schools requiring a minimum of two years of collegiate pre-pharmacy:

15.6	1.21	C	yes
7.0	1.25	C +	yes

EDWARD A. BRECHT, Chairman

## **Report of the Committee on Hospital Pharmacy Education\***

The Committee met in Chicago, Illinois, July 28 and 29, 1954. Members present were Don E. Francke and Evelyn G. Scott, representing the ASHP; Donald C. Brodie and George L. Webster, representing the AACP.

The general concern of the Committee was to discuss what had seemed to be a possible area of misunderstanding between the two groups in regard to the in-service training of hospital pharmacists, in relation to undergraduate and graduate instruction in Pharmacy. The Committee found that there was substantial agreement along the following lines:

There is a growing need for more manpower to provide pharmaceutical services to the hospitals of our country. The ASHP as well as the AACP is concerned about the best way of providing trained and effective pharmacists for this purpose. The ASHP, in its 1953 meeting, accepted a number of pertinent definitions as representing its organized opinion. [The Bulletin, ASHP, 10, 393 (1953)]

This joint committee agreed that a person who was graduated from an accredited college of pharmacy with sound fundamental training in the basic sciences and pharmaceutical technology was sufficiently prepared for beginning a career in hospital pharmacy. It was agreed that in order for the student to determine if he wished to become a hospital pharmacist, the college of pharmacy should offer some information about the nature of the work just as it should about other phases of pharmacy. It is suggested that this orientation should be offered in the senior year of the undergraduate program.

Slides of installations and activities of hospital pharmacists, talks by hospital pharmacists and visits to hospital pharmacies should be a part of the orientation program. If the college has a suitable affiliation, elective courses may be offered as a more intensive orientation.

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\*This was a Special Committee, appointed by President Reif, composed of representatives of the American Society of Hospital Pharmacists and the American Association of Colleges of Pharmacy.—Ed.

The operation of a hospital pharmacy may be considered as having two objectives: (1) that of keeping the wards, clinics and out-patients supplied with drugs at an optimum level and (2) an educational objective directed toward improving the effectiveness of the pharmacy personnel.

The first objective can be served by an on-the-job experience in which the graduate pharmacist acquires skill and speed in the usual activities of a busy hospital pharmacy. Depending upon the size and service requirements of the installation in which he gains this experience, he may learn much or little about administrative problems.

He will undoubtedly increase in value to the hospital pharmacy as he acquires more skill and greater familiarity with its recurring problems. However, his development as a creative worker in the field is left to his own initiative.

This type of experience should qualify him as to the experience requirement for licensure examination but, aside from entitling him to receive a certificate of experience, should not be considered as having any academic significance.

It was the opinion of the Committee that some colleges of pharmacy should provide training in addition to the fundamental undergraduate program, designed to foster the development of leadership in hospital pharmacy. This may take one of two directions. First, a post-graduate professional program comprising lectures, demonstrations and practice in a hospital pharmacy.

The subject matter may include such topics as: (a) operation and management of the hospital and pharmacy; (b) hospital administration; (c) accounting; (d) studies in pharmacology and toxicology of the seminar type; (e) manufacturing processes for sterile solutions, galenicals of standard types, and specialized formulation of dosage forms.

The practical experience in this connection should be varied in nature and will, in most instances, have only slight influence for increased productivity in the hospital pharmacy. Its aim should be to give the student a broad coverage in experience, participation in staff meetings and conferences with

only incidental benefit to the hospital pharmacy. This is the philosophy of the pharmacy internship. For this reason, it is suggested that the number of internships granted by a given hospital be limited to the size and willingness of the staff to devote a substantial amount of time to teaching.

The above program may well culminate in the award of a professional degree in hospital pharmacy if it is given under the direction of the faculty of a college of pharmacy acting for itself or under an arrangement with a graduate college. It is understood that any program leading to a degree, which involves in part a work experience, requires that the college granting the degree has investigated and approved the hospital pharmacy in which the experience is obtained.

It is possible that some colleges of pharmacy may not wish to establish a professional degree in addition to the well established research (M.S.) in the pharmaceutical sciences. In these instances the Committee is of the opinion that the usual requirements for the research degrees will serve the field of hospital pharmacy equally well. It holds the opinion that a research degree in hospital pharmacy, e.g., M.S. in Hospital Pharmacy, should be granted only if the candidate, in addition to meeting the requirements for the degree M.S. in Pharmacy shall have had a one year internship in an approved hospital pharmacy. This internship may be taken prior to, concurrent with, or subsequent to the academic and research requirement but should precede the granting of the degree.

The joint committee discussed and expressed its general approval of the Minimum Standard for Pharmacy Internships in Hospitals (1953) and its precursor the Guide to Application of the Proposed Minimum Standard for Hospital Internships in Hospitals (1951) as published by the American Society of Hospital Pharmacists. It wishes to point out that the principal problem in this connection is enforcement. This would require a plan of accreditation and an inspection, which require time, money and inspection personnel which do not



appear to be available at this time. One suggested solution is to have the accreditation of the hospital pharmacy internship made by the inspectors of the Joint Commission on Accreditation of Hospitals. This would require negotiation and time. Until a formal accrediting agency shall have been established the hospital pharmacists who are interested in having accredited internships might voluntarily use the Minimum Standards for Pharmacy Internships in Hospitals as a guide for their efforts and the point rating plan of the Catholic Hospitals Association as a means of determining their own readiness to offer an internship program.

**The Committee recommends:**

1. That efforts to promote the educational objective of the internship program as outlined by the Division of Hospital Pharmacy of the APhA and the ASHP be continued.

The committee is of the opinion that some system of evaluation of hospital pharmacy internships needs to be evolved.

It is suggested:

- (a) That a check list of qualities which could be used as criteria for judging an internship program might be prepared by a qualified agency.
- (b) That a personal inspection of the hospital pharmacy applying for evaluation be made by a team composed of a representative of the local chapter of ASHP, a member of the state board of pharmacy and a member of a college of pharmacy faculty.
- (c) A report of the inspection and a recommendation from the inspecting team be transmitted to the Division of Hospital Pharmacy as a basis for its approval or disapproval of an internship program in the applicant hospital pharmacy. If the action is one of approval, a certificate from the Division shall be issued.

2. That the AACP recommend to member colleges that the Master's degree in hospital pharmacy require, in addition to the academic requirements, the satisfactory completion of an internship in an approved hospital pharmacy.

3. That the Division of Hospital Pharmacy of the APhA appoint a committee to prepare a suitable check list for a program evaluation of hospital pharmacies that wish to offer internships in hospital pharmacy.

**GEORGE L. WEBSTER, *Chairman***

## **Report of the Editor of the American Journal of Pharmaceutical Education**

As I ran over the reports of the Editor of the Journal that have been made in the first 17 years of its existence, I am struck by the sameness of these reports which results in monotony. Emerson once wrote, "The moment we indulge our affections the earth is metamorphosed; . . . all tragedies, all ennuies vanish." If I should attempt to paraphrase that statement it would read something like this: The moment the readers of the Journal criticize either it or the Editor, either or both would be metamorphosed; . . . tragedies would remain unaffected but all ennuies would certainly vanish. It might be a good thing to occasionally reverse the custom and have the readers of the Journal make a report to the Editor. The Editor would welcome such a reversal.

There is little to say about the Journal covering the period since the Salt Lake City meeting that does not appear in the report of the Secretary-Treasurer or that is not revealed in the pages of the Journal since that date. Dr. Deno has made a Herculean effort, and with success, to correct the mailing list by eliminating duplications. These duplications were due to the fact that many board members, association secretaries and people in industry were paid subscribers before the American Foundation for Pharmaceutical Education came to the support of the Journal. When the Foundation came to the support it asked that all members of boards of pharmacy and Foundation donors be supplied with the Journal at their expense.

Dr. Deno has also recovered a considerable sum from delinquent subscribers and has been able to induce subscribers to adjust their dates for renewing their subscriptions so as to have them start at the beginning of a volume which greatly reduces the work of his office.

For the first time in the Journal's history the Editor has received more papers than he can publish and keep within his allotment. This includes a number of papers he has

asked for so as to take care of the years when the number of papers for publication was limited. It is a wholesome condition of affairs when the publications are increased in both number and quality.

It is evident that interest in the Journal, both domestic and abroad, is on the increase.

The Editor expresses his gratefulness for the continued efforts of the collaborators and the Conferences of Teachers as well as many individuals, for their helpfulness in making the Journal possible.

RUFUS A. LYMAN, *Editor*

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## **Report on the Pharmacy Section Program of the Sixtieth Annual Meeting of the Association of Military Surgeons of the United States\***

About twenty persons attended this first program of this first meeting of the Pharmacy Section of the Association of Military Surgeons. As was to be expected from the title of the meeting, the representatives of the military service, together with the U. S. Public Health Service, comprised the majority of those in attendance.

President Franzoni of the American Pharmaceutical Association (Col., MSC Reserve, U.S. Army) emphasized that the APhA had been particularly active in planning for the expansion of the pharmaceutical service rendered by the pharmacy units in the various governmental services. The Association, in its last annual meeting at Salt Lake City, had passed resolutions favoring the removal of the limitation of rank for members of the Medical Service Corps in the various branches of the Armed Forces. He added that the Association hoped to implement these resolutions by sponsoring legislation

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\*This meeting was held in the Hotel Statler, Washington, D.C., November 11, 1953.

which would improve the status of pharmacists in the Government which would improve the status of pharmacists in Government service. In closing, he reminded the representatives of all the Government agencies that the APhA was always ready to assist each and everyone of them in any efforts to improve the status of pharmacy in the Government service.

Dr. Fischelis, Secretary of the APhA (Captain, U. S. Public Health Service Reserve) urged the pharmacy members of the various governmental agencies to broaden the pharmaceutical service which their units offered to these branches of the Government. In this connection, he suggested that the pharmacist could join with the physician, nurse, and other members of the health science team in exploring therapeutics more carefully and recording and assembling data relative to the side effects of drugs. He pointed out that the pharmacist is the best trained in chemistry and pharmacology of any member of the team, and hence is eminently fitted for this unique position. He admonished the pharmacist in the Government service to be constantly alert and to offer other services for which he is well qualified and which are not now being performed, or are being performed by persons less qualified by education and training.

Lt. Col. Roth, MSC, U. S. Army, Lt. Col. Rigsby, MSC, U. S. Air Force, and Lt. Comdr. Bechtloff, MSC, U. S. Navy, all extolled the usual well known accomplishments of the pharmacists in their respective services. Since the supply of pharmacists exceeds the demand of each of the services, it is not possible to offer pharmacists a commission as is the case for physicians, dentists, veterinarians and nurses. The Navy procures all of its MSC officers by examination after the candidates have served a six-month enlistment. (In this connection it was interesting to learn that the Navy is still training about 30 Technicians per year in one of their own nine-month schools). All were in agreement that it is necessary for pharmacists to perform duties other than strictly pharmaceutical if the number of commissioned pharmacists is to increase. Among these other duties for which pharmacists are qualified and which they are assuming in the Armed Services are Supply Officers, Personnel Officers, Instructors in Service

Schools, Assistants to Battalion Surgeon, Executive Officers in Hospitals, Consultants to Therapeutic Aid Committees, Procurement Officers, especially in specification, inspection, testing laboratories, and cataloguing, and Industrial Mobilization Planning Officers, such as location of plant facilities, plant surveys, production schedules, and special projects.

Mr. Vernon O. Trygstad, Assistant Director of the Pharmacy Service in the Veterans Administration Office, Washington, D. C., (Lt. J.G., MSC Reserve, U. S. Navy Reserve) gave a brief summary of the utilization of pharmacists by the Veterans Administration. Each of the 166 hospitals operated by the VA has a chief pharmacist with a total employment of 450 registered pharmacists by the VA. Pharmacists have an equivalent rank with the other services in the hospital. Twenty to twenty-five pharmacists attend and participate in the Annual Institute of Hospital Pharmacy. Recently a hospital pharmacy internship was established at the Los Angeles facility in cooperation with the University of Southern California School of Pharmacy. Pharmacists participate in a number of other training programs as well.

Mr. Milton Skoulat, Senior Pharmacist of the U. S. Public Health Service and Chief of the Pharmacy Department, Bethesda National Clinic, Washington, D. C., described the pharmacy Central Sterile Supply Unit. He outlined the various services offered by the Department, including the preparation of sterile solutions and surgical supplies, such as rubber gloves, hypodermic syringes and needles, etc. Not only does his department prepare sterile solutions, but it supervises the controls that are necessary, such as the use of code numbers, sterility testing, pyrogen testing, etc. In addition, the department has been able to offer custom prepared solutions to the medical services of the hospital. The expanded services offered by the Central Sterile Supply Unit under the direction of a pharmacist have been very well received by the other units in the hospital. As Mr. Skoulat pointed out, the pharmacist is admirably qualified by training and education to operate this unit. This is a very good example of utilization of pharmacists in roles where they have not been ordinarily used by branches of the Government.

Pharmacist Henry W. Beard, U. S. Public Health Service, Chief of the Pharmacy Service, Out Patient Clinic, Public Health Service, Washington, D. C., pointed out that the U. S. Public Health Service had utilized pharmacists in their professional capacities for nearly half a century. In 1945 it formally established a Pharmacy Service with a director (Captain) in charge. At the present time the Pharmacy Service spends 33 cents of every supply dollar. Pharmacists serve on committees of the Service in a status equal with that of the other members of the Public Health Service. At the present time the USPHS has four hospital pharmacy internship programs and it is hoped to establish a hospital pharmacy residency in the future.

Mr. Beard emphasized that pharmacists should be and are being utilized as more than technicians because of their formal education and training (mentioned areas of chemistry, pharmacology, bacteriology). He predicts a six-year educational and training course for pharmacists within the next decade, after which they will have even greater opportunities in the USPHS.

NOEL E. FOSS, *Representative*

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## **Report of the Representative to the Meeting of the American Association for the Advancement of Science**

The One Hundred Twentieth Meeting of the American Association for the Advancement of Science was held at Boston, December 26-31, 1953. Because the Association has 18 sections and 84 subsections, it was impossible for one person to attend more than a few meetings. Several special sessions were notable, especially addresses by Dr. A. V. Hill of London on Physiology, President Detlev W. Brook of the Rockefeller Institute, and Dr. Leonard Carmichael of the Smithsonian Institute. The Science Teaching Societies held very interesting meetings, highlighted by sessions of the National Science Teachers Association.



There were 237 booths for exhibits of books, maps, instruments, laboratory equipment, scientific supplies, and machinery. The most popular exhibits were the gas turbine for aircraft by General Electric Company, the instruments for study of radioactivity, and electronic devices.

The Subsection on Pharmacy held meetings on Monday, December 28, and Tuesday, December 29. There were about 50 persons at the first session, but the number dwindled to a minimum of 20 in later ones. There were about ten research papers and two symposia, one on professional resources, and one on accreditation of hospitals. Your representative is always disappointed with the interest shown by pharmaceutical scientists in this midwinter meeting.

On the whole, this meeting of the American Association for the Advancement of Science was considered a great success and certainly presented much of interest to your representative.

**E. V. LYNN, *Representative***

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## **Report of the Delegate to the National Wholesale Druggists' Association**

The seventy-ninth annual meeting was held in Los Angeles, California, October 5-7, 1953.

There were many interesting papers presented and I can report that the convention was a very successful affair. One of the outstanding papers was prepared and delivered by President George Kauffman, "Program for Profit"; other significant papers were given by Dr. Austin Smith, "The Medical Care Story," and Walter N. Kuntz, "Inadequate Profits." The other papers were of special concern to the wholesale druggist. I can commend your reading all papers presented and especially the three I have given special mention as they are reported in the Year Book.

**ALVAH G. HALL, *Delegate***

## **The Plant Science Seminar Annual Meeting, 1954**

The thirty-first annual meeting of the Plant Science Seminar was held at the University of Connecticut, at Storrs, August 18 through August 21, 1954. This year's meeting was shorter than usual because the AACP Teachers' Seminar was scheduled on the same campus from August 15-20. Dr. A. E. Schwarting, local chairman, concentrated an interesting program of papers and demonstrations, business, field trips and social events into the available hours with a minimum of conflict.

Chairman Hiner, at the first session, recommended that strenuous effort be made to enlarge the membership of the Seminar and he requested all members to participate in building up the collection of pharmacognosy slides which will be available for loan to members upon request. Dr. H. G. Coar discussed and illustrated his topic, "On the Nuclear Envelope", and Dr. Anna H. Kofler read a paper on "The History and Significance of Grasses".

On Thursday a tour of the University gardens and greenhouses was directed by Dr. G. A. L. Mehlquist who discussed his work on "Some Problems of the Genetics of Garden Flowers". An evening program of papers included Dr. P. V. Hammond's presentation of his joint work with G. B. Griffenhagen, "Your National Materia Medica Collection". Dr. H. W. Youngken, Sr., prepared a "Demonstration of *Rauwolfia* Species" in which he displayed and discussed drug samples and herbarium specimens of this genus. "Chromatography and Drug Plant Analysis" was described by Dr. F. L. Mercer who pointed out the opportunities and advantages of such procedures.

The question of "Intraspecific Variability: Its Causes and Significance to the Taxonomist and Pharmacognosist" was presented by Dr. W. H. Camp whose experiences in studying the Ericaceae and South American special of *Cinchona* was interestingly told. The importance of this topic to pharmacognosy was impressed on the audience.

Following the annual banquet on Friday night, Mr. R. D. Wood projected a hundred superb colored portraits of wildflowers to illustrate his entertaining talk on "Bogs, Barrens and Bywoods". On this occasion Dr. H. W. Youngken, Sr., presented the Newcomb Memorial Awards in Pharmacognosy. The first award to an undergraduate student was received by Mr. James L. Renaud, Medical College of South Carolina. The graduate award was shared by Dr. Carl H. Johnson, University of Florida, and Dr. Shafik Balbaa, University of Cairo, Egypt.

The field trip on Saturday was led by Drs. Camp and Mehlquist of the University of Connecticut faculty assisted by Mr. R. D. Wood and Mr. R. H. Waldo. A noontime box lunch and an afternoon watermelon cutting were pleasant breaks in the days' botanizing activities.

The final business session on Saturday night was directed by the first vice-chairman, J. Russell Anderson. The secretary-treasurer reported 80 registrants from 31 American and 2 Canadian schools and colleges of pharmacy, and 9 other institutions or firms. Reports from committees on films for teaching and on nomenclature were carried over until 1955. Resolutions adopted included the formation of a committee to work with the Smithsonian Institute on the materia medica collection, and a committee to review all papers presented before the Seminar. Time and place for holding the 1955 meeting was left to the Executive Committee. The Seminar also decided to develop standards of membership and organization.

The nominating committee report was adopted and the newly elected officers installed for 1954-55:

Chairman—J. Russell Anderson, Parke, Davis Co., Detroit, Mich.

1st Vice-chairman—Raymond W. VanderWyk, Massachusetts College of Pharmacy, Boston, Mass.

2nd Vice-chairman—Arthur E. Schwarting, University of Connecticut, Storrs, Conn.

Secretary-Treasurer—J. Hampton Hoch, Medical College of South Carolina, Charleston, S.C.

**Executive Committee**—Carl H. Johnson, University of Florida, Gainesville, Fla.  
L. David Hiner, University of Utah, Salt Lake City, Utah.  
J. R. Anderson, Chairman  
J. H. Hoch, Secretary-Treasurer.

J. HAMPTON HOCH, *Secretary*

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### **The Program for the Miami Meeting**

Considerable sentiment has been expressed in favor of starting our Annual Meeting on Saturday in order to give more favorable time for meetings of the Sections of Teachers and to permit inclusion of other significant papers on the program. An earlier starting time is not practical this year because the reduced hotel rates are not in effect generally in April. This matter will again be considered for the Detroit meeting.

The Miami meeting, therefore, will follow in general the pattern of other recent meetings of the Association. Committee reports will be presented in abstract, with mimeographed copies of the complete reports available for distribution.

The Director of Educational Relations of the Council, Dr. Melvin W. Green, will present an address dealing with problems and progress in graduate instruction in our colleges of pharmacy. Dr. Green has recently tabulated data on graduate programs in member colleges which reveal startling extension of instruction at the graduate level. His paper will be of interest not only to representatives from colleges offering graduate programs, but to everyone present because our graduate students come from all of our member colleges.

A panel discussion on planning for the extended program will include brief formal presentations by representatives of several types of pharmacy colleges, who will then give their views in answer to specific questions from the floor. Among the issues to be discussed will doubtless be that of program pattern: 0-5, 1-4, 2-3. President Burt will act as moderator.

Speaker at the joint banquet with the Boards will be Mr. Robert A. Hardt, Vice President of Hoffman-LaRoche, Inc., and President of the American Pharmaceutical Manufacturers Association. He will speak on "Raising the Public's Esteem for Pharmacy", a subject he has given much attention to. Mr. Hardt has shown keen interest in many of our problems, and is well qualified to discuss this topic.

## **The President's Section An Experiment in Intraprofessional Relations**

At a meeting of the Executive Committee of the Association held on the day following the final session at Boston, it was suggested that the President of the Association direct a letter to the secretaries of all state pharmaceutical associations, and to the secretaries of all state boards of pharmacy, concerning the action taken on the lengthened program of pharmaceutical education. As well as I could determine from the discussion which followed, the hope was that such a letter would serve its intended purpose if it succeeded in any measure in bringing about a better understanding of the program which had been adopted and, if possible, closer cooperation among our examining boards, our state associations and our colleges in planning, initiating and developing the extended program.

As can be seen from the sample letter which is found below, no direct questions requiring an answer were included; as a matter of fact, I did not expect any replies. It was my feeling that if, as a result of the letter, the secretaries of the associations and of the boards were induced to discuss the program with the deans of our schools and colleges, my principal objective would have been achieved. I was therefore greatly surprised and gratified to receive no less than 19 replies, of which 12 were from state board of pharmacy secretaries and seven were from state association secretaries. Not only was it surprising to receive so many replies, but the fine spirit of cooperation which they expressed, almost without exception, was especially encouraging. It clearly showed that the colleges of pharmacy have in these two groups, friendly allies quite ready and willing to work with us in solving the many problems which will arise in implementing the extended program. It would be a great

mistake for us to fail to consult these people and invite them to participate actively in the planning of our new program.

The letter which I sent out was brief, and followed a general pattern, but was modified to suit local conditions with respect to the number of schools, or the lack of schools in a given state, and whether or not extended programs had already been adopted, as is the case in several of the states. A typical letter follows:

"Dear Secretary Doe:

I am quite certain you know of the action taken by the American Association of Colleges of Pharmacy at their Boston Meeting with reference to the extension of the pharmaceutical curriculum to provide for preprofessional work. In effect, member schools and colleges of pharmacy must require, after April 1 of 1965, five years of work, of which at least three must be professional work, for the degree in pharmacy. The Association is working diligently upon the improvements in the curriculum which will be possible with this extension of time. Those member colleges who have not already adopted the extended program are now attacking the problem.

"It is our hope that the initiation of this program will enable our schools and colleges of pharmacy to turn out even better pharmacists of the future. To accomplish this, we will need your continued support, suggestions and guidance. May I suggest that it would be most helpful to the colleges if you would undertake to learn from the deans and faculty members of the schools in your state, the pattern of the new program (that is, whether 1-4, 2-3 or integrated), what courses will be added and exactly what curriculum changes are being contemplated. You would then be in position to render great service to your fellow pharmacists, and to prospective students of pharmacy, in disseminating information concerning the new program."

I cannot, of course, quote from the replies in great detail without revealing the identity of the writers. I have, however, selected brief passages from a few of these replies which will transmit, I hope, a little of the warmth and spirit of cooperation which these replies expressed. One association secretary writes:

"To the best of my knowledge this is the first time this association has ever been called upon by the American Association of Colleges of Pharmacy for support, suggestions or guidance. I'll attempt to find out from the deans (of the colleges in our state) the patterns of their new programs. Frankly the



whole thing reminds me of the fullback that wanted to carry the football the first game he ever played and then wondered what the hell to do after the ball was given to him." . . . "Before you get the wrong idea, I personally am in sympathy with your five year course."

**A board secretary writes:**

"... your letter has been brought to the attention of (the deans of our colleges), and I assure you that the universities as well as this Board will do everything in their power to disseminate information concerning their programs, as well as to recruit suitable prospective students in pharmacy."

**Another board secretary says:**

"With the close relationship (in our state) between the School, the Pharmaceutical Association, and the Board, I feel certain that the transition to the five-year program will be worked out to the satisfaction of all concerned. You may be sure that the Board will cooperate in every way possible to make these changes with as little difficulty as possible."

**Another board secretary writes:**

"This matter is at present being studied by the faculty . . . of our college . . . and the Board of Pharmacy together with other interested pharmacists throughout the state. There will be a joint meeting early in February, and I am of the belief that some very definite conclusions will be formulated at that time. This is a matter that will not be hurried because the faculty and the Board of Pharmacy are very desirous of giving careful study to it in order to work out an outstanding academic program. . . There is no question in our minds that we will be able to do a much better job in educating the young men and women in the field of pharmacy, and they will be able to render better service to their community."

**Another board secretary states:**

"At the meeting, after discussion, a motion was made, seconded and carried to the effect that . . . the exact nature of the course to be offered be left to the discretion of each individual institution. That is, they might offer either a 1-4, a 2-3, or a five year integrated program."

**Another association secretary says:**

"I wrote both Deans and find them far from having made any decision and neither could tell me when they would be able to give me a new pattern. . . You can be assured that we will give them every cooperation in an effort to get an understanding when they are ready to go."

**Another association secretary writes:**

"I have asked . . . our Dean . . . for the answer to your letter. . . Here is his reply." (A quotation from the Dean's letter gives the complete curriculum pattern to be adopted.)

**Another association secretary located in a state which does not have a college of pharmacy writes:**

"In reply to your letter . . . please be advised that we are in a very poor position to give you any information that you seek due to the fact that . . . our state . . . does not have a college of pharmacy. . . However, any help we can give you in our bulletins if you so wish for dissemination of news will be freely given."

**Another association secretary writes:**

"You may rest assured that our association will cooperate in every way we can in this new undertaking; and I will appreciate it very much if you will forward to me any material in the future dealing with this matter that you may acquire."

**Another association secretary says:**

"Received your correspondence in regard to the five-year program and are contacting the various colleges in this matter. We will forward to your attention their replies as soon as we receive them."

There are many other statements in these letters that could be quoted if space were available. I believe, however, that the sampling I have given is sufficient to show that both our boards and our associations are willing to cooperate and are only awaiting to be asked to assist us in dealing with the many problems in developing the extended program. Every member college should take full advantage of this opportunity,—for in this way will come far better understanding, co-operation, and support for the extended programs in pharmaceutical education now being developed. It is, I believe, rather significant to note that not a single letter which I received contained any suggestion of criticism, or objection to the action taken by our Association at the Boston meeting, providing for the extension of the pharmaceutical curriculum.

JOSEPH B. BURT, *President*

## **The Editor's Section**

In the April 1954 number of the Journal, page 367, we called attention to a brochure giving the results of a two-year study made by a subcommittee of the Educational Advisory Council and the Educational Advisory Committee of the National Association of Manufacturers. Twelve persons constituted the subcommittee, six were educators and six were industrialists, all of the first order in their respective fields.

The task assigned the subcommittee was to study the major controversial issues concerning education in the United States. These issues, briefly stated, are the purposes of Education in America: the support of education, the responsibility of educators, the responsibility of industry to education, and the ultimate responsibility for education. The conclusions were reported in eleven broad "areas of agreement" in a series of statements published at the final section of the brochure under the general heading, "This We Believe About Education." This, in turn, became the title of the brochure.

Mr. Robert H. W. Welch, Jr., of Cambridge, Massachusetts, chairman of the subcommittee, in a preliminary statement, expressed the hope that if the brochure makes a contribution to further discussion which will result in better understanding and a closer relationship between education and industry, it will have served its purpose. He also expressed his appreciation to the officers and staff of the NAM Education Department for their capable and untiring assistance rendered to the subcommittee during the course of the study, and then added, "I welcome this same opportunity to write one sentence to, and about, my fellow members of the Subcommittee, both educators and industrialists. Their unwavering respect for intellectual integrity, in others and in themselves, and their interest, cooperation, and painstaking labors in hammering out together this consensus made our association a rewarding and encouraging experience.

We can take much pride in the revealing and important fact that we began the job as acquaintances and finished it as warm personal friends."

While this study dealt chiefly with the relation of industry to general education, the findings are just as applicable to any and every field of specialized education. The NAM has set a pattern which brings understanding and cooperation, and what is just as important, it eliminates the fear in the minds of educators that industry's main objective is to dominate education. And that brings us to the educational-industrial relationship in the pharmaceutical area.

Well does the writer remember that the first time he attended the annual meeting of the American Pharmaceutical Association, at Hot Springs, Arkansas, in 1908, it was rumored that industry's ambition was to control that organization. From the side lines he saw nothing to justify such a rumor. Perhaps it was because he was a stranger and was more interested in a study of outstanding characters whose names were familiar to him in text books and pharmaceutical and medical literature but whom he had never before seen. As a matter of fact those individuals who took part in the program and the discussions and who were the officers of the organization were apparently all college men. Nevertheless a sense of fear was recognizable in the atmosphere.

Years later when the National Drug Trade Conference was organized the fear of industrial control was evident. So much so that there was considerable objection among the AACP membership toward making a contribution to the support of the Conference. In the light of the accomplishments of the Conference, that fear has faded away.

Again, when the American Foundation for Pharmaceutical Education became a reality there was a very marked fear that it was a tool to be used to dominate education by industry. In the light of the fact that this organization has become a major factor of the century in the promotion of pharmaceutical education, that fear has faded away.

On the other hand, there has been fear in some quarters that education would dominate industry, if for the time being we may consider retail pharmacy as industry. In the second decade of the century there appeared in the local press, in connection with the program of the annual meeting of our own state association, a statement urging all druggists in the state to attend the meeting in order to prevent the American Conference of Pharmaceutical Faculties (now the AACP) from running their business. But with the passage of time that fear too has largely become obsolete. We have reached a period of understanding and cooperation between educators and industrialists that bodes well for the future of pharmacy.

No single individual has been more influential in bringing about this interdependence than Dr. Robert L. Swain. His understanding of the problems of education and of industry, the fairness of his opinions, the solidarity of his judgment, his foresight as to the future of pharmacy and its potentialities, and his tolerance of the opinions of others have won for him the respect and the endearment of the entire body pharmaceutic. The endearment is the "priceless ingredient" in any human activity. Dr. Swain's article entitled, "Pharmaceutical Education, the Foundation of the Drug Industry in All Its Parts, and the Pharmaceutical Profession in All Its Phases: Let's Understand It and Use It," appearing as the leading article in this issue of the *Journal*, is a masterly presentation of the dependence of pharmaceutical industry upon education and vice versa. For Dr. Swain's unselfish efforts for the promotion of pharmaceutical education, we owe him a debt of gratitude.

George Martin was born in County Galway, Ireland. In the 1860's, as a boy, he came to the United States. He located in Arizona City (now Yuma, Arizona) where the turbulent Colorado cuts through the desert and the sand dunes on its way to the sea. He stayed there until 1883. He then moved to Tucson, married, and founded the Martin Drug Company. In 1906 he died. To George Martin and Delfine (Rodondo) Martin, on September 13, 1886, in the city of

Tucson, a son, Andrew Philip Martin, was born. Andrew grew up in Tucson. He attended the local public and parochial schools and later was enrolled at the University of Arizona, 1902 to 1906, taking preparatory and college work. After the death of his father in 1906 he became president and general manager of the Martin Drug Company. By 1930 there were five Martin stores in Tucson and one in Ajo, a rich copper mining community approximately 150 miles west of Tucson. In 1954, when the Martin Stores were sold to the Ryan-Evans chain of Phoenix, there were seven stores in Tucson and one in Casa Grande.

Mr. Martin has had a remarkable career. He assisted in the organization and development of the Arizona Pharmaceutical Association in 1910. He was a member of the Arizona State Senate in 1915. He organized Arizona's first National Guard unit but refused a commission in order to join his buddies in the ranks as a private, and later a sergeant, in the 340th Field Artillery in World War I. He became Arizona's first Department Commander of the American Legion following the war. He played a major part in developing the Arizona college degree requirement law for pharmacy registration in 1935 and the Arizona Pharmacy Act of 1951. He served as a member of the Arizona State Board of Pharmacy, as president of the Arizona Pharmaceutical Association and in numerous other offices during the past half century. He is affiliated with Rotary International. During World War II Mr. Martin served on the Pima County Selective Service System and is a member of the County Welfare Board.

Mr. Martin's benevolences toward the people of Pima County is legendary. Although remaining in the background in welfare work, he always made medical aid available to those unable to pay for it. On one occasion when a penniless cotton picker contracted a serious illness in Casa Grande, his treatment (which amounted to nearly \$5,000) was personally underwritten by Mr. Martin. His loyalty to his long time employees is shown by his having maintained pharmacists



and other employees on the Martin Drug Company pay roll following their retirement.

Mr. Martin has always cherished his associations with the University of Arizona by which his life has been colored from his early days when he was a member of the varsity football team in 1904 and 1905. He was honored as a recipient of the University's Alumni Service award in 1947. The minutes of the Arizona Pharmaceutical Association record that he served with a committee in 1930 to contact the Arizona Board of Regents concerning the establishment of a school of pharmacy at the University. The records of 1947 named Mr. Martin among those responsible for developing the school which opened in September of that year. He was also among the staunch supporters of the resolution which was passed by the Arizona Pharmaceutical Association convention of 1950 advocating the advancement of pharmaceutical education beyond four years. He has served as chairman of the Pharmacy College Committee of the Association since its inception. He has personally provided bus transportation to the annual state convention for the senior students on two occasions and has aided in its provision in all other years since the college opened. He has made it known that he and his committee are always ready to act upon any problem which confronts the college but has insisted that the committee step in only when approached, in order to avoid the possible criticism of attempting to influence or "run" the college. His presence in professional pharmacy has been a source of great strength in behalf of the college.

Mr. Martin is a director of the Valley National Bank, an institution having branches in many cities in Arizona. In fact there is not a profession or a business within the state that has not felt the impulse of the vigorous and forceful life of Andrew Philip Martin who is universally and affectionately known as "Andy."

Mr. Martin is a quiet, gentle, self-effacing man. He knows not that these lines are being written. Never a word of his accomplishments has passed his lips. What has been written has been learned from personal observation and leaks

from those who have known him intimately through the years. Well, you may ask, why have they been written. I will tell you.

Several years ago Dean George E. Crossen, of the Oregon State College, made a remark which made an ineffaceable dent on my memory. His exact words I cannot recall but the sum and substance of what he said was that he hoped to see the day come when pharmacists, by their manner of living and the service they render, would make the value of the profession so plain to the layman that it would no longer be necessary to set aside a week each year in which to publicize the value of the profession to community life. The life and accomplishments of Andrew Philip Martin is a concrete example of what will accomplish that objective much more effectively than all the lip service that is now being directed toward "improving our public relations." He has cut a pattern that will bring greater dignity and respect to the pharmacist and to pharmaceutical practice.

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The trend in recent years has been for independent colleges to seek affiliation with and become an integral part of a tax supported or highly endowed university. We belong to the group that approves of that policy because we believe it adds to the dignity of pharmaceutical education and gives to the institution a stability that is greater than it had in its isolation. Moreover it gives the student a contact with other fields of human activity. It broadens his viewpoint and gives him a sympathetic understanding of other people in other fields of activity that he will have to live with when he becomes a part of a community. In addition, when a professional school becomes a part of a state supported or an endowed university, it creates in the mind of the university administration and in the public mind an interest in and a responsibility for the support of pharmaceutical education. Well do we remember that near the turn of the century, President Edmund Jane James of the University of Illinois made a statement that for a great university to take an independent college into its family of colleges, which puts upon that college new moral obligations, and does not give it addi-

tional financial support, is unfair to both the college and the profession it represents. There is one point, however, which the professional college must remember when it becomes a part of a great university. It must remember that the agency which accredits a university takes, as one of the major factors in giving it accreditation, the standing that its professional colleges have with their own accrediting agencies. In the case of a pharmacy school, of course, that would mean the standing given it by the American Council on Pharmaceutical Education. It is evident that the integration of an independent college into a university requires, not a one-way, but a two-way street.

All of this is being said as a prelude to what we want to say in paying tribute to President Ivor Griffith and the alumni and friends of the Philadelphia College of Pharmacy and Science, who under his leadership, cleared the College property of a \$486,000 mortgage and increased the endowment fund from \$137,000 to \$1,500,000 in a campaign of only a few years. An amazing accomplishment which reminds me of the slogan, "It can be done," coined by the late beloved Leon Lascoff, who recognized no obstacle as insurmountable. But President Griffith's accomplishment has a deeper significance than the surface presents. It means that the alumni who are largely retail druggists, have come to recognize their responsibility to pharmaceutical education and have expressed it in a very substantial way. We believe the retailer has been conscious of this obligation for a long time but he lives a more isolated life than any other pharmaceutical group and he needs leadership. Dr. Griffith furnished that leadership and he cut a pattern that is just as valuable to the college in a tax supported or endowed university as it is for the independent school. Education in all its phases has become so expensive that tax supported and heavily endowed institutions have found it necessary to appeal to their alumni and have formed their own foundations to obtain additional support to take care of their ever increasing activities and responsibilities.

And lastly, good news comes from the University of Oklahoma announcing that a former graduate student of that university, grateful for the financial assistance which he had received while a student, has made a contribution toward repayment to the foundation that gave him help, in order that its work might be perpetuated. We do not know this student's name but he has cut a pattern which, if universally followed by all who have received aid from a foundation, will mean much in the promotion of pharmaceutical education.

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The year 1954 witnessed the passing of a number of outstanding men in the educational group. For these, memorials have been prepared and are published in this number of the *Journal*. We shall cherish the memory of their fellowship and services with gratitude and will share the loneliness of those left behind. To them we express our sympathy and seek comfort in the promises which Easter assures to those who believe.

After these lines were written, there came the notice of the passing on January 9, 1955, of Elizabeth Nowland Elliott, the life companion of our beloved Dr. Edward C. Elliott. While Mrs. Elliott engaged in many activities for community betterment on her own account, her fort was her home and in that fort she backstaged those scenes which made possible the accomplishments of her famous husband. To Dr. Elliott and the four children we extend our sincerest sympathy because of their loss and with them share the hope of the future.

RUFUS A. LYMAN, *Editor*

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## Marriages

Dr. Vernon Bulgrin, assistant professor of chemistry, University of Wyoming, and Miss Dorothy Ann Littig, at Moline, Illinois, on August 28, 1954.

## **Gleanings from the Editor's Mail**

Sir:

The Pharmaceutical Society of People's Republic, Serbia, Belgrade publishes the Scientific, "Arhiv za farmaciju". The Society is exchanging it with your review: The American Journal of Pharmaceutical Education. When revising our books in our library we found numbers 1, 2, 3, Vol. 15, 1951 missing, and as the work on scientific disciplines in our profession is more and more developing, we would like to complete all the yearly issues of your Journal. As we could not get the above mentioned numbers in our country, we will be very grateful if you will send them to us and will be glad to return your kindness by sending you anything you may want. . . .

Beograd Yougoslavie  
20. XI. 1954.

Chief Editor of  
Arhiv za farmaciju  
(Mr. Milan Grosdenovic)

Dear Editor:

Your excellent publication is enjoyed by many readers in our Company. So that we will not miss an issue, we would like to renew the subscription (s) listed below (Volume XIX).

1530 Spring Garden Street  
Philadelphia, Pa.  
November 29, 1954

Mrs. Lynn Snyder  
Library, Smith, Kline and  
French Labs.

Dear Editor:

Though the inclosed article is rather brief (see Graduate Students in Pharmacy, this issue), there are in it a number of points which when singled out can serve as the subjects of extended debates. I merely bring to your attention the more prominent problems which I encounter, however I hurriedly add an affirmation of my confidence in the fact that the teachers of undergraduate courses in pharmacy across the country are doing an excellent job despite an overwhelming curriculum (be it 4 or 5 years is immaterial) and furthermore the teachers themselves are possessed with so much enthusiasm that enough of it brushes off onto energetic students, many of whom find their way into our graduate schools. For reasons given, their lot is hard and long—they cannot earn a master's degree in one year or a doctor's degree in three. They cannot live a normal life because of the many demands on their time (see text), and frequently they ask aloud, "Is it worth the trouble?" This is a thought of the moment, and they do not really

mean it, consequently their thinking is easily righted, and so they drive on. Their attitude is wholesome and their ambition is genuine, and so I can feel only the greatest confidence in them and their future which, of course, carries with it the future of pharmacy.

Storrs, Connecticut  
July 12, 1954

Paul J. Jannke  
University of Connecticut

Dear Editor:

You have asked me to write to you concerning the influences that sent me into graduate work and I have tried to think back to the time some twenty years ago this spring when I finally decided that graduate work was for me. I'm not sure, at this late date, just what was most important or, indeed, if one was more important than another.

I suppose that the facts that I had been a good undergraduate student and had found that I enjoyed helping my fellow students, led me to believe that I would enjoy teaching and, in fact, had some natural aptitude for teaching. Since an advanced degree was required for entering the teaching profession, my course was obvious.

My parents, I believe, had some influence. My father had many times told me to get as much college work as I could and to avoid becoming a little part of big industry. He had, I am sure, always wanted to teach. He was an engineer for one of the large automobile companies and although he had a fine record of accomplishment, he still longed for the academic life. Over the years, I presume, I came to look upon teaching as my goal, too.

There was also the fact that the man with whom I did my graduate work needed students and during the spring he talked to me several times. This undoubtedly tended to influence me toward graduate work.

Another factor which I believe was rather important was that I received my B. S. degree during the tail-end of the depression. Jobs in retail pharmacy were relatively scarce and not too remunerative. I am sure that I felt that I would have more security when, and if, I became the holder of an advanced degree. Incidentally, it is interesting to note that when I did receive the Ph.D. and obtained employment as a teacher, my salary was considerably less than I could have gotten as a registered pharmacist! But I was happy in my work and, after all, contentment is more important than a high salary.

This last statement, I presume, points up another factor, namely, that I had an idealistic streak about me, somewhere, that made it imperative that I go on rather than settling down to a business life. Not that idealism is inconsistent with business—quite the contrary—but that I was hopeful that I might find a place in the scheme of things pharmaceutical where I could have a wider field of action than I felt I would have in a store.

Finally, I guess that I just wanted to go on. I had developed some interest in research by "hanging around" the research laboratories and



my curiosity had been aroused. I wanted to "discover" things myself. I wasn't sure that I could but I wanted to try. The opportunity came, so I took it.

I'm not sure how much my recollections have been colored by my experiences since I did decide to enter graduate work. It's difficult now to look back without seeing some of the events that have occurred along the way. But, as of today, what I have said seems to be about what went through my mind in the spring of 1934. I have (nearly) always felt that I chose the best course for myself and I am sure that, knowing what I do today, I would choose it again.

College of Pharmacy  
University of New Mexico  
May 18, 1954

Elmon L. Cataline, Dean

Dear Editor:

I want to say to begin with that I am not writing any of this for publication specifically. In the first place it will not be that extensive nor that authentic. I will simply express my views on several matters. If you care to take parts of them or rearrange them to include some of them in your report that will be fine. But I prefer not to publish what I write here as a separate paper or article.

I will divide my brief discussions into three subjects. The first is concerned with the subject "ways and means to direct more qualified graduates into graduate work." As you requested, I will relate from my own personal experiences.

It is difficult to pin down any one point as being the major factor influencing me to do graduate work in Pharmacy. I am sure no single factor accomplished this. As I look back to my undergraduate days in the College of Pharmacy at The Ohio State University from 1937 to 1941, I believe I first became interested in advanced education as a result of being an undergraduate or student assistant. Dean Christensen first employed me when I was a pharmacy junior to assist in the freshman laboratories and with the grading of examinations. I very soon found that I enjoyed this work (beyond the financial aid it provided). It was extremely gratifying to be able to help others because of something I had already learned. I found each day that I looked forward to the next with greater enthusiasm. Naturally my thoughts turned to the possibilities of making teaching a career and I soon found myself with a desire to teach but with insufficient experience as well as education.

Dr. Ole Gisvold joined the staff at Ohio State in the fall of 1940 when I was a senior. It is to Dr. Gisvold that I give the major credit for interesting me in graduate work. His leadership, personality, education, and remarkable abilities influenced me to at least make an attempt to follow after him. With his aid I secured a graduate teaching assistantship at the University of Minnesota and did my graduate work

under him there (Dr. Gisvold returned to Minnesota in the fall of 1941).

Another factor influencing my desire to do graduate work and then teach was the desire to do something to improve the professional standing of pharmacy. This desire was strengthened by my four years in the Army during World War II. I saw many instances of incompetence in Army Pharmacists, and many cases where prescriptions were filled by enlisted men with no pharmaceutical education other than a short course in the Army. I think this was deplorable and do not understand why Pharmacy permitted it. Fortunately, the Army school has finally been stopped, but our entire profession suffered a severe blow by this situation. It will take many years to lift us back to a high point of recognition again with many people including some doctors who observed the same thing that I did.

So, to summarize, I believe there were four things which influenced me to enter graduate studies in pharmacy and to continue them after the war interrupted my program. They are:

1. My experience as an undergraduate assistant
2. My desire to teach
3. Inspiration of a well qualified teacher like Dr. Gisvold and the opportunity to do research under him
4. My desire to improve the professional standing of pharmacy

In concluding the first of the three subjects I intend to discuss, I would like to add two factors that I believe would aid in directing students into graduate fields. The first of these two is a presentation, by publication or personal counseling, of the fine and varied opportunities for people with advanced degrees in pharmaceutical areas. This could best be done by well-qualified leaders in pharmacy addressing the classes of all colleges of pharmacy. Publication would not serve the same purpose because many would not bother to read the journal or would fail to comprehend its implications as well as they might by the personal classroom contact. I do not mean that we should simply list the opportunities but instead we should include figures on both supply and demand for trained personnel.

The other factor that should help direct students into graduate work is the publication on an impartial basis of the various programs of graduate study that are available in the pharmacy schools equipped and staffed to provide good graduate training. I suspect that many schools do not know what graduate school to recommend to those students who are interested in graduate work.

As I am writing the above I observed one factor of great importance on this subject that I almost neglected to mention—financial aid. I am sure the Foundation Fellowships have improved this factor since I was a student, but perhaps more yet is needed. Certainly if a man spends 5 years studying pharmacy he is going to need financial aid to be induced to study an additional 3 years.

Now to the second subject selected for brief discussion—that of what to teach, when to teach, and how to teach. I agree with you that this subject is a most vital one. It should be the concern of every one in pharmacy. As to the latter part—how to teach—I believe the forthcoming Seminar for teachers of pharmacy on "Methods of Teaching" if properly arranged should be of considerable help. The trouble is that the ones who do not attend that seminar will most likely be the ones who need it most. The only answer I can see for this is publication of the entire contents of the seminar and the making of it required reading by all teachers of pharmacy by the deans of the colleges. Of course, the requirement that every instructor on the university level have a degree in education would be another step toward improving college teachers, I am sure. Perhaps our graduate programs should contain certain courses in education as requirements for those intending to teach.

What to teach and when to teach it has been the subject of much discussion both at past seminars, in teachers conferences, and in the publication "The Pharmaceutical Curriculum." There isn't very much new material I would add to this. I do believe an attempt should be made to obtain greater standardization of the curriculum on a nationwide scale. This may be easier to do when all colleges are on a 5-year program or on the same length program whatever it may be. It cannot be accomplished with so many different requirements as we have today. The 4-year curriculum is definitely inadequate and the sooner this fact is accepted, the better it will be for pharmacy. I think it is a shame that we are permitting the 4-year program to run until 1960. As to the actual content of each course, we could never hope to pin that down to any fixed outline, but we can do something about standardization of time devoted to the separate areas of pharmacy and the total length of time of study for the desired professional standard. I don't believe I want to add anything more on this subject at this time.

The third subject I indicated a desire to discuss does not come under the jurisdiction of this committee as I reconsider our function. So I will be very brief on it. I believe the greatest problem facing pharmacy today is that of unity. Pharmacy needs a strong organization well unified and well cemented together for the good of the profession; not for the good of the manufacturer, not for the good of the boards of pharmacy, not for the good of the colleges, not for the good of the retail pharmacist, and not for the good of the hospital pharmacist, but for the good of the whole profession of pharmacy. We do not have such a unity today and pharmacy is suffering because of it. Each year it seems to me that we are growing farther and farther apart. What can be done about it? It certainly comes under the subject of Problems and Plans of Pharmacy if not under our committee of the AACP. I believe we should have a strong national APhA with every

pharmacist in the country as a member. At the present time such an ideal seems impossible, but are we to permit our areas to grow still farther apart? I believe the AACP should get to work on this problem one way or another.

Columbus, Ohio  
March 19, 1954

Frank W. Bope  
College of Pharmacy  
Ohio State University

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### **Pharmacists Wanted by Veterans Administration**

Applications are being sought from registered pharmacists for employment in hospitals and regional offices of the Veterans Administration throughout the United States and in Puerto Rico. The salaries range from \$4,205 to \$5,500 a year.

To qualify for these positions, applicants must be graduates of an approved school of pharmacy and be currently registered as a pharmacist in one of the States or territories of the United States or in the District of Columbia. For positions paying \$5,060 and above, at least two years of professional experience in pharmacy is required. Satisfactory completion of a two-year pharmacy residency may be substituted for two years of this professional experience.

Salaries for the various grades of employees (there are three grades) whose services meet the prescribed standards of efficiency, are increased by \$125 after each 12 months of service until the maximum schedule for each grade is reached. The maximum basic salary range is \$4,955 to \$6,250.

The basis for grade rating will be made on the applicant's qualifications as judged from a review of his experience and training as described in his application and on corroborative evidence. Exaggeration or misstatement will be cause for disqualification or later removal from the service. No written test is required. Applicants must be citizens of the United States. There is no maximum age limit for these positions but applicants must be physically able to perform efficiently the duties of the position to which they are assigned.

Full information and application forms may be obtained from many post offices throughout the country or from the U. S. Civil Service Commission, Washington, D. C. Applications will be accepted until further notice and must be filed with the Central Board of Civil Service Examiners, Veterans Administration, Washington 25, D. C.

## Notes and News

**University of Arizona.**—Seventeen members of the alumni and the active chapters of Rho Chi and their guests attended an initiation ceremony and dinner at the Student Union before the Homecoming Day football game on November 6. One senior was initiated into the active chapter and seven graduates into the alumni chapter.—At the Annual Honors Day Assembly of the University on December 1, the two Pill-Ette Freshman Pharmacy Awards of \$150 each were presented to Richard DeJong and Max Lind. The \$500 Brunswick Drug Company Award went to Richard Albrecht, a third year pharmacy student.—Shahjehan Karim, a third year pharmacy student at this college and editor of *Arizona International*, a foreign student magazine on the Arizona campus, has returned to his studies after presenting a series of broadcasts for the Voice of America's Southeast Asia English series. After attending the first convention of Pakistan students in America in Chicago last June 18-21, Mr. Karim was invited to broadcast a report on the convention from the New York office of the Voice of America. Subsequently a regular schedule of broadcasts was set up in which he reported on the following topics: Terramycin, Antibiotic; Rauwolfia, the Root from India; Middle East Projects of the University of Southern California and the University of California at Los Angeles; and The World University Service. Others in the series will be broadcast from Tucson during the current school year and will include medical and pharmaceutical subjects. Recently, Mr. Karim has been appointed by His Excellency Syed Anjad Ali, Pakistan ambassador to the United States, to serve as a member of the East Pakistan Flood Relief Committee, the purpose of which is to seek relief materials, including medicines and clothing for the Pakistan people who were left homeless as a result of the recent floods in that country. Plans are tentatively being made by the E. R. Squibb Company to provide Mr. Karim an opportunity to study in England next summer for administrative service in the Middle East and Southeast Asian Pharmaceutical Service of that firm.—The pharmacy students, during Pharmacy Week in October gave three TV broadcasts, five radio broadcasts and installed professional pharmacy displays in windows of five prominently located business firms in the city. Officers of the Student Branch addressed, in person, seven service club meetings in Tucson.

**University of Buffalo.**—Dr. Daniel H. Murray was appointed as acting dean effective July 1, 1954. Dean A. Bertram Lemon was made Dean Emeritus and will remain on the teaching staff as a full time professor.—Dr. Clifton F. Lord, Jr., has been elected to a three year directorship of the Western New York Branch of the American Society of

Hospital Pharmacists.—*The Script*, the student publication of the School of Pharmacy, is again being published. Three numbers will appear during the current college year.—Prof. Laurence D. Lockie has returned to the teaching staff on a full time basis. His book, "Potions to Pills to Penicillin" came from the press last fall.—The annual Awards Convocation was held on November 2. The convocation is made possible by the generous gifts of a constantly increasing number of donors through whose contributions nearly ten percent of the students have been helped to a total amount of \$11,350. A unique feature of the convocation is that the donors of the prizes are permitted to make the presentations in person.—Currently, ten students are registered for graduate work. Seven of them are in pharmaceutical chemistry, two in hospital pharmacy, and one in pharmacology.

**Butler University.**—The J. I. Holcomb Observatory and Planetarium was dedicated on November 5. This opened the University's year long centennial celebration. Governor Craig of Indiana delivered the principal address at the public convocation opening the dedication.—There will be at least two graduate assistantships available and probably a grant-in-aid for the fall of 1955.—On October 21, Dean K. L. Kaufman addressed the Sertoma Club of Indianapolis on the subject, "The Scientist on the Corner," and on November 16, he spoke before the Indianapolis Association of Retail Druggists on, "The National Organization of Pharmacy."—Instructor Earl F. Brake has been promoted as assistant professor of pharmacy.—In December the senior class and faculty were guests of the Eli Lilly Company.—Kappa Psi initiated nine new members during December.—A \$1600 Warburg apparatus has been added to the equipment.—Dean Kaufman is chairman of the Central Indiana Science Fair, the purpose of which is to interest young people in the study of science and mathematics. The Fair is to be held in the latter part of April and the exhibits will be housed in the Pharmacy Building. The monthly meetings of the University's chapter of Sigma Xi are also held in the Pharmacy Building.—Mr. Penworthy of the Narcotics Bureau spoke on "Narcotic Problems," and Mr. Ray Clutter, attorney for the Lilly Company spoke on "Legislation Affecting Pharmacy," at recent meetings of the Student Branch.

**University of California.**—Dr. Alain Huitric, who completed the doctorate in pharmaceutical chemistry in June, 1954, has been appointed assistant professor of chemistry at the University of San Francisco.—Dr. Sidney Riegelman, assistant professor of pharmacy, received the first annual award in audio-visual education by the AACP, and presented it at the Boston meeting. The film was entitled, "The Physical Properties of Cocoa Butter in the Preparation of Suppositories." Mr. Berton E. Ballard, a senior pharmacy student collaborated with Dr. Riegelman in its production. A master record of the script and slides is being prepared and in the near future will be available upon request to member colleges for reproduction.—The dedication ceremonies



commemorating the Medical Sciences Building, Increment I, and the Herbert C. Moffitt Hospital will be held in March 1955. The buildings are already occupied.—Dr. Troy C. Daniels and Dr. and Mrs. Donald C. Brodie attended the Teachers Seminar at the University of Connecticut in August.—Dr. Brodie spoke to the Marin County Dental Society on November 17 on the subject, "Current Drugs in Dental Practice."—Dr. E. O. Jorgensen, assistant professor of chemistry and pharmaceutical chemistry, presented a paper entitled, "The Chemistry of Flower Pigmentation in *Antirrhinum Majus* Color Genotypes, Part III. Relative Anthocynin and Aurone Concentrations," before the meetings of the American Chemical Society in September.—At the fall meeting of the local chapter of Rho Chi new members were initiated. Dr. Kenneth Scott, associate professor of experimental radiology and director of the radio-activity research center was the speaker.

**University of Southern California.**—Approximately 300 alumni and friends were present at a dinner at the Hotel Statler to hear Alumni Fund Director Tom Nickell discuss plans for the celebration commemorating the fiftieth anniversary of the School of Pharmacy and the seventy-fifth anniversary of the University which is set for October 1955. Other speakers were Dean Hall and Congressman Joe Holt.—Thirty-three seniors visited the Eli Lilly plant over the Thanksgiving holidays. After touring the plant, all went to South Bend to see the USC-Notre Dame football game.—Seventy-five alumni of the San Francisco area assembled at the Hotel Fairmont on November 7, to hear the speakers of the Boyle seminar present reviews of pharmaceutical progress. Speakers included Dean Hall, Drs. John Biles, Orville Miller, and Prof. E. S. Brady. Other out of town speaking engagements were filled by Dr. Biles at San Pedro and Santa Maria, Dr. Miller at Santa Ana, and Prof. Brady at San Pedro.—Rho Chi initiated three new pledges on December 16.—Rho Pi Phi alumni met with the active chapter on December 16 at the Hotel Hollywood-Roosevelt. The groups concurred in a plan to donate a complete pharmacy for installation in the New Mount Sinai Hospital. Joe Weinberg will head a committee of 17 to conduct the drive.

**University of Colorado.**—The annual pharmacy banquet, sponsored by the Student Branch, was held on December 7, with members of the Colorado State Board of Pharmacy and the officers of the Colorado Pharmacal Association as guests. The guest speaker of the evening was Dr. Henry Baker, pastor of the First Methodist Church of Pueblo. The annual Rho Chi Freshman Achievement Award for the most outstanding freshman for 1953-54 was presented to Richard Meyers of Gering, Nebraska.—A new elective course in animal health pharmacy, which includes a study of biologicals and pharmaceuticals that are used in the treatment of animal and poultry diseases as well as the pesticides and instruments that are employed, is being given for the first time this year. The operation and merchandising aspects of the ani-

mal health department is also discussed. Guest speakers include representatives of the manufacturers, owners of retail pharmacies and practicing veterinarians.—Mr. Walter Bowles, a 1941 graduate, has been appointed as instructor in pharmacy. He has had extensive experience in retail pharmacy, as a medical service representative with Lederle and Wyeth, and as a chemist with the Denver Rio Grande and Western Railroad Research Department and with the University of Denver Research Institute.—Dr. Harold Heim, associate professor, and Dr. John McDonald, research associate, have been awarded a renewal of their grant from the Boettcher Foundation for a continuation of their research in the field of endocrinology.—Dean and Mrs. Charles F. Poe were honored guests at the November meeting of the Weld County Pharmacal Association at which time the Association was entertained by McKesson and Robbins.—Guest speakers appearing before the Graduate Chemistry and Pharmacy Seminar have been Dr. Louis Fieser of Harvard University, and Dr. Ronald Bell of the department of chemistry of Oxford University.—Messrs. Robert McKay and John Herath, June 1954 graduates, have received commissions as pharmacists with the United States Health Service. Another graduate, Mr. Ramon I. Arozarena, has been appointed manager of the Parke, Davis and Company's new branch in Caracas, Venezuela.

**Columbia University.**—Registration for the first semester is as follows: 104 freshmen, 90 sophomores, 107 juniors, 29 graduates, 1 special student, and 43 evening laboratory technician students, making a total enrollment of 473. Of these 410 are men and 63 are women. Of the 400 day students registered for the B.S. degree, 364 are men and 36 are women. In the graduate group, 23 are men and 6 are women. In the evening laboratory technician group, 23 are men and 20 are women.—Andrew Esposito has been appointed registrar of the College to fill the vacancy created by the resignation of Mrs. Myrtle Augustin which became effective December 1. Mr. Esposito holds the A.B. from Columbia College, the A.M. from Columbia Teachers College and is at present an "unclassified" candidate for the Ed.D. at Columbia. He served for four years in the Marine Corps, three of them overseas, he was in the bursar's office at Columbia from 1946-1952 when he left to become assistant to the registrar, also at Columbia.

**University of Connecticut.**—On December 1, a meeting was held by members of the Executive and the Advisory Executive Committees of the Connecticut Pharmaceutical Association; the State Pharmacy Commission; and the faculty of the College of Pharmacy to discuss problems of common interest among which was the supervision of internships and course content of the four year curriculum. The chief speaker at the event was President A. N. Jorgensen who discussed the future of education.—A new award to be known as the Joseph Prokop Memorial Prize is now offered to the student of highest standing in public health from the Bridgeport area. Mr. Prokop was very active

in pharmaceutical matters in the state and had been elected president of the Connecticut Pharmaceutical Association but died before assuming office.—At the November meeting of the Student Health, Dr. W. H. Camp of the botany department was the speaker. His topic was "The Pharmacist and Biological Variability."—Dean H. G. Hewitt represented the School of Pharmacy at the recent celebration of Columbia University marking its 200th anniversary year and the 125th year of the College of Pharmacy.—*The Pharm-Conn*, journal of the school, has been rejuvenated and several numbers will appear this year. A food sale was held recently in the Student Union Building to obtain funds for the paper.—Mrs. Lovine Goodale has been appointed librarian to fill the vacancy left by Mrs. Norbert Raezka who resigned because of her husband's illness.—Dean Hewitt and Prof. N. W. Fenney addressed a meeting of the Bridgeport Pharmaceutical Association on November 9.—Prof. Fenney was honored at a testimonial dinner on November 8 at the Waverly Inn, in Cheshire, Connecticut, in recognition of his election as National Grand Regent of Kappa Psi. President Jorgensen was the guest speaker at the banquet which was sponsored by the Connecticut Graduate Chapter of the order.—Monkeys are now included in the pharmacology equipment and a full time caretaker and gardener has been engaged.—For the first time since the inception of the program four years ago, a pharmacy student has attained the rank of University Scholar which is the highest award given by the University to an undergraduate. The University Scholars, of whom there are not more than 10 each year, are selected from outstanding students in the junior and senior classes for academic privileges not usually accorded undergraduates. Under the system a student may waive the regular study requirements and undertake studies which will be of greatest help to him in pursuing his program. The pharmacy student so honored this year is Anthony P. Simonelli who was one of only three students announced this year as University Scholars.—Nine pharmacy students made last year's first grade Honors and sixteen made second grade Honors.—A series of six lectures by authorities in the pharmaceutical industry is being offered in connection with the graduate course in product development. The lecturers will spend an afternoon with the pharmacy students elaborating on various phases of pharmaceutical development. The course centers around the Model Products Formulation Laboratory which enables students to follow a pharmaceutical formula through its various stages of research and development until it is placed on the drug store shelves for retail sale. Student researchers, through experiments and tests, must decide whether the preparation will be in the form of a tablet, a powder, a liquid, or semi-liquid and take into consideration the product's use as well as circumstances such as temperature, climate and ease of handling and marketing.

**Detroit Institute of Technology.**—Dr. Michael Lozano joined the faculty last September as assistant professor of pharmacognosy. He was born in Central America of French and Austrian parents, but spent most of his life in Europe. He received the doctorate in 1946 and taught in Germany and France before coming to the United States in 1950. He was a member of the faculty of Loyola University of the South for three years where he taught botany, pharmacognosy, pharmacology, and natural organic chemistry. He is a member of the APhA.—An underground chemical laboratory operated by three Detroit high school students recently came to an end when Dr. Lozano found one of the youths attempting to break into the Institute's chemical laboratory where the three had hoped to obtain materials for their experiments. They were described as very brilliant students who had made unsuccessful efforts to study chemistry on the college level. They therefore turned to conducting experiments with explosives, plants, and plastics at home. Unable to buy their equipment, they decided to steal. According to police they had produced an explosive six times more powerful than TNT.—The first meeting of the College of Pharmacy Advisory Board was held December 9. President Ayers briefly discussed the duties of the new board and the help it can give to the pharmacy college in the attempt to provide new laboratories, equipment, office space and to make possible increased salaries and additional instructors. They also discussed accreditation and fund raising. It was decided to enlarge the Board of Advisors to 20 so as to afford a more representative body.—Paul C. Wieseman, chief pharmacist of the Norwich Pharmacal Company, spoke before the student body on November 10 on "How a New Product Is Born".—The senior class visited the Upjohn and the Lilly Laboratories the first week in November.—This college is the second oldest pharmacy school in Michigan. The present enrollment is 180, of which 46 are new students, 14 are women, and twenty are taking advantage of the GI Bills.—Two-thirds of the students work after school hours, practically all of them in drug stores.—Marie Wiczorek, a freshman, won a \$200 Light's Jubilee Scholarship presented by the Detroit Edison Company.

**Drake University.**—A new \$250 pharmaceutical chemistry scholarship has been set up with funds provided by the Odor-Aire, Inc., of Wichita, Kansas. An annual grant of this amount will be paid to the university to administer for the benefit of a worthy student. Charles Browning, Jr., a 1941 law graduate of Drake, is president of Odor-Aire, Inc. Mrs. Browning is also a graduate of Drake.

**Ferris Institute.**—A new curriculum is in effect the current year. The major differences between the old and the new include the shifting of the pharmacy courses to the last three years to allow easier scheduling of transfer students, the eliminating of undesirable duplication of subject material, and the inclusion in the schedule of a new course in library usage and a course in biochemistry.—The Board of Control has

approved the construction of a new science building and money for the project has been approved by the Michigan Legislature. The three story building will cost approximately \$1,000,000 and will be designed to house all the laboratories, offices, a solarium, and a model pharmacy as well as the laboratories of other science courses.—Mr. Clark E. DeHaven of the pharmacy teaching staff, has been appointed as a full-time executive secretary to the Ferris Alumni Association. The rapid growth of the organization has for a long time indicated such a need.—Mr. Abraham Matalon, a member of the staff for the past two years, has resigned to take a position in the production laboratories of Cosmetics Incorporated.—Forty-six senior students were recent guests of the Lilly Company in Indianapolis.—A one day seminar for retail pharmacists was held on November 10. The topics discussed were largely of a business nature.—Thirty-three new students from the freshman class have joined the Student Branch bringing the total membership to 137.

**University of Florida.**—At the annual Christmas party on December 10 the Borden Award, a cash prize of \$300, was given to James Y. Blake, Jr., and the Emrich Prize, membership in the APHA, was given to Robert M. Schatz.—Dr. L. G. Gramling was elected Grand Recorder of Gamma Sigma Epsilon Chemical Fraternity at its national meeting, December 3 and 4. He presided at its sessions in his capacity of Worthy Grand Alchemist.—The College of Pharmacy has become, for administrative purposes, a part of the J. Hillis Miller Health Center. This is a desirable step whereby the College retains its independence but facilitates its cooperation with the other health professions such as the new medical school.—October 4 and 5 was the occasion of a Refresher Course for pharmacists at Miami under the sponsorship of the University of Florida. Most of the speakers were nationally known members of the profession.—New fellowships have been awarded by the American Foundation for Pharmaceutical Education to Barry H. Dashowitz and Miss Josephine Siragusa, doing graduate work here.

**Fordham University.**—New appointments to the faculty are Rev. Joseph W. Murray, S. J., assistant professor of religion, and Henry Burke, instructor in chemistry.—At a regular meeting of the Alumni Association on November 3, Inspector Peter Terranova of the Narcotic Squad of the New York City Police Department spoke on "Narcotic Problems".—The Rev. Charles J. Deane, S. J., vice-president and secretary general of the University and former regent of the College of Pharmacy, celebrated a Mass of Thanksgiving on October 24, commemorating the golden jubilee of his entrance into the Society of Jesus. A testimonial dinner in his honor was given at the Hotel Biltmore on November 18, at which he heard "Memories in Song" rendered by Rev. J. Joseph Lynch, S. J. The principal address was made by Rev. L. J. McGinley, S. J., president of Fordham.—The senior class visited the Hoffman-LaRoche Laboratories at Nutley, New Jersey on November 18.

At the December meeting of the Student Branch, Dr. Boris Liebmann of the New York State Board of Pharmacy spoke on "Errors in the Practical Licensing Examination".—The yearly Convocation of the Faculties of Fordham University was held on November 21 with President McGinley as the principal speaker.

**University of Georgia.**—Four upper classmen have been awarded scholarships by the American Foundation for Pharmaceutical Education. Scholarships awarded to non-veteran junior or senior students with a "B" average were made possible through a grant from the Foundation which was matched by funds from pharmacy alumni and from the Kappa Psi and Phi Delta Chi fraternities.—The school of pharmacy opened its fifty-second year with a record number of first year students. Sixty-nine freshmen are registered which is even a higher number than during the lush years of veteran enrollment. It is thought that this can be attributed to efforts of retail pharmacists and those of the Georgia Pharmaceutical Association in interesting students in the profession. Thirty-two students entered with advanced credit, making a total of 101 new entering students. The total enrollment stands at 225.—Jack P. Johnson, a 1952 alumnus, has been added to the staff as instructor. After retail experience he spent two years in military service.—Dean Kenneth L. Waters represented the AACP at the National Wholesale Druggists' Association meeting held in Hollywood, Florida, November 13-18, 1954.—The Student Branch sponsored an orientation program for all new students and ended with a hard fought debate on the advantages of increasing the college requirement for entrance to professional study.—Phi Delta Chi honored Dean Emeritus R. C. Wilson with a barbecue on Homecoming week end. It was attended by many alumni and friends of the university including Lieutenant Governor Ernest Vandiver.

**George Washington University.**—Pi Chapter of Alpha Zeta Omega held the annual scholarship award dinner on November 30 to present the 1954 award to Barry Deutschman. On the same occasion Dean C. W. Bliven was presented a \$500 check to be added to the Benjamin Schoenfeld Memorial Fund.—George P. Larrick, commissioner of the Food and Drug Administration, has resigned his position as special lecturer and Nevis E. Cook, assistant to the commissioner, has been appointed to fill the vacancy.—R. Donald Early, M.A. Economics, assistant operations manager of the Henry B. Gilpin Wholesale Drug Co., has been appointed a lecturer in pharmacy management.—The Governing Board of the General Alumni Association of the University has authorized the formation of a School of Pharmacy Alumni Association and plans are being made for a meeting of all alumni in order that the organization may be formally established before the end of the present academic year.

**University of Houston.**—Dr. Don C. Kroeger, associate professor of pharmacology, attended the annual meeting of the Society of Pharma-



cology and Experimental Therapeutics at Charlottesville, Virginia in September. He presented a paper on "Drug Effects on Rat Brain Glycogen" which was co-authored by Miss Jacqueline Claus, a graduate assistant in pharmacology, before the South West Section of the Society of Experimental Biology and Medicine at Little Rock, Arkansas in November. At the same meeting Mr. D. P. Papandrianos presented a paper which was co-authored with Dr. Kroeger on "The Effects of Fasting Treatment on the Acid-Soluble Phosphates of Rat Intestines." Mr. Papandrianos is at present engaged as a research assistant at the M. D. Anderson Cancer Hospital in the Texas Medical Center in Houston.—Early in 1954, Dr. Kroeger and Dr. Kan E. Sheer, associate professor of psychology, were made co-recipients of a research grant to the amount of \$6,000 a year for two years for the purpose of studying the psychophysiological correlates produced by deep electrode intervention on the brain in cats and monkeys. The grant was made by the Mental Health Service of the United States Department of Public Health. A grant of \$1,500 for the year 1955 has been made by the Ciba Pharmaceutical Products, Inc., to Drs. Kroeger and Sheer for the purpose of studying the pharmacological and psychological effects of reserpine in cats and monkeys.—An In-Service training program is being offered this year, the purpose of which is to familiarize the students with all the operations and departments in the average drug store. Speakers are chosen from various organizations in the drug industry or closely allied fields.—Mr. James W. Lansdowne of the Eli Lilly Company and Dean Edward C. Reif of the University of Pittsburgh, attended the NARD Convention in Houston in October and while here addressed the Student Branch at the University.—Dean N. M. Ferguson has been appointed chairman of the Pharmacists' Branch of the Professional Division of the Annual United Fund Drive in Houston. This is the first year that pharmacists have been included in the Professional Division.—Dean Ferguson attended the Third Pan-American Congress of Pharmacy and Biochemistry in Sao Paulo, Brazil, on December 1-8. He represented pharmaceutical education in the United States as a delegate from the APhA. At the meeting he presented two papers entitled "Pharmaceutical Education in the United States," and "Some Newer Concepts on the Teaching of Pharmacognosy."—Quentin Newcombe, Jr., a 1954 graduate, is a teaching assistant and is working toward the doctorate in pharmaceutical chemistry at the University of Minnesota. His wife, Louise Stewart Newcombe, also a 1954 graduate, is a hospital pharmacist in the VA Hospital in St. Paul.—Students selected to receive scholarships for the current school year include seven seniors, two juniors and one sophomore. Donors of the scholarships include wholesale houses, drug store owners, and pharmaceutical organizations throughout the state. The value of the scholarships range from \$200 to \$300 each.—A recently completed building program provides new pharmacology laboratories, animal room, and offices for the pharmacy staff in the new psychology building. Remodeling of

the pharmacy quarters, which occupy the first floor of the science building, include a new pharmacognosy laboratory, a staff research laboratory, storage facilities for drugs, three new offices for staff members, and a balance room for the drug assay laboratory. Completely new equipment and fixtures have been used in both the new and the remodeled quarters.

**Howard College, Birmingham.**—Forty-six students visited the Abbott Laboratories and the Upjohn plant in November.—Prof. Harold Nelson is on leave working toward the doctorate in business administration at the University of Denver as a Fellow of the American Foundation for Pharmaceutical Education.—Dr. W. R. Byrum installed the officers of the Montgomery (Alabama) Retail Druggists Association at a dinner recently. Dr. Byrum was also an honor guest at a recent dinner meeting of the Past Presidents' Club of the Birmingham Retail Druggists Association.—Howard Pharmacy Alumni met recently at a dinner, sponsored by local wholesale druggists, to elect officers for the coming year. Progress on the incorporation of the Howard College Alumni Foundation was continued with the empowering of a committee to appoint a board of directors from a list of nominees.—Work on two buildings is well under way on the future campus of Howard College. Plans for the building to house the Division of Pharmacy have been completed and the building will soon be under construction.—Registration in pharmacy continues to increase with a total registration of 159 students for the first semester of 1954-55.—New equipment includes a large autoclave and a sterilizing tank for animal cages.

**Howard University, District of Columbia.**—The cornerstone for the new pharmacy building was set in place October 22, 1954 by representatives of the United States Government, Howard University, and the American Association of Colleges of Pharmacy. The principal address was delivered by Dean Linwood F. Tice, President-elect of the AACP. Other speakers were the Honorable Bradshaw Mintener, Assistant Secretary of the Department of Health, Education, and Welfare, Dr. Mordecai Johnson, President of Howard University, and Dean Chauncey I. Cooper of the College of Pharmacy.—The new pharmacy building, located in the Science Quadrangle with physics, chemistry, and biology, is to be four stories, and of brick and stone construction and is expected to be ready for occupancy by September 1955.—Dr. Nathan Levin attended the Fourth National Medicinal Chemistry Symposium which was held in June at Syracuse, New York.—Each department of the College was represented at the Teachers' Seminar at Storrs, Connecticut in August. Most of the faculty members attended the AACP meetings in Boston the following week.—The pharmacognosy class with Dr. P. V. Hammond visited the Agricultural Research Center at Beltsville, Maryland, in October. Several members of the class are also currently engaged in a joint research project at the Smithsonian Institution in Washington.—At the October meeting of the Stu-

dent Branch, the record made by Secretary R. P. Fischelis, for distribution during Pharmacy Week, was played and a second movie was shown.—Mr. L. S. Granel, merchandising director of the Henry B. Gilpin Company, spoke to the students and faculty at the December meeting.

**Idaho State College.**—On December 7, the College of Pharmacy, acting as host, invited the physicians of Pocatello to see a kinetoscope recording of a previously televised symposium on the control of hypertension. The film was sponsored by the Wyeth Laboratories.—The annual Christmas party of the staff and their families was held at the home of Dr. and Mrs. Riedesel on December 17.—The staff is continuing its efforts in presenting refresher type conferences for practicing pharmacists. One recently held at Boise included the aspects of veterinary pharmacology as they pertain to pharmacy, physiologic aspects of anticholinergic therapy, and trends in hormone therapy.—Considerable progress has been made on the proposed five-year curriculum. A 2-3 plan is being shown favorable consideration since it gives more time for liberal arts and business courses. The staff are agreed that the curriculum should have sufficient flexibility to make it possible for students to direct their educational efforts along lines in which they may wish to specialize.—Mr. Dow Peterson, a graduate of the college, who is now the pharmacist in the Bannock Memorial Hospital, has been appointed instructor in hospital pharmacy.—A new ventilating system has been installed in the animal quarters. The air is changed four times in every hour and the fresh air is heated before it is drawn into the rooms and a constant temperature is maintained.—Bids have been submitted for new furniture for the pharmacology laboratory providing needed facilities for both the beginning and the advanced classes.—Because of the close relationship between the college and its alumni, frequent requests for talent for entertainment is made by the towns in southern Idaho. At a recent Masonic dinner at Shoshone the students furnished entertainment consisting of instrumental and vocal numbers and impersonations.—The College is continuing its traditional policy of providing instruction for its students in the form of field trips. Recent visits have been made to the ZCMI Wholesale Drug Company in Salt Lake City, by the class in drugstore management, and to the Gem State Wholesale Drug Company and Intermountain Surgical Supplies Company in Boise, by the class in hospital pharmacy.—The Alpha Zeta Chapter of Phi Delta Chi has initiated Mr. Jack Heinz, of Salt Lake City, and Mr. Fred R. Peterson of Pocatello as graduate members. Six undergraduates were initiated as active members on December 5, at a dinner at which Dr. Frank Robinson, director of public relations for the L.S. Skaggs Drug Company of Salt Lake City was the principal speaker. The subject of his talk was, "A Time for Greatness."

**University of Illinois.**—Practical completion of the new pharmacy building has been accomplished by the installation of the laboratory desks and fittings in the graduate laboratories. This makes possible separate laboratory study areas for graduate students working in pairs. There are eleven rooms on the fifth floor. All the undergraduate laboratories have been in use since the beginning of the school year.—All second, third, and fourth year students have been completely organized, officers elected and representatives and their alternates to the Student Council have been named.—Mr. Ralph A. Carpenter of Villa Park, president of the Illinois Pharmaceutical Association, was elected chairman of the Advisory Committee of the College of Pharmacy, of which he has been a member since 1950, at a recent meeting of the Committee. Mr. Oscar Hodel, owner of a professional store in Rockford, was appointed by the Board of Trustees to complete the term left vacant by the resignation of N. O. Haney. Other members of the Committee are Harold Pratt, director of professional services for the Walgreen Company, and Paul Sang, general manager of the Humiston-Keeling Company of Chicago. Dean Serles and Assistant Dean Joseph S. Begando of the College are ex-officio members of the Committee. During the Committee meeting, Dean Serles presented a scroll to Mrs. Otto J. Pelikan in the name of the Advisory Committee, in recognition of the long and many services of her husband, the late Otto J. Pelikan of Oak Park. The scroll cites Mr. Pelikan for "his outstanding record of devotion to the interests of professional pharmacy in the state of Illinois." He served for ten years on the Advisory Committee, was its chairman twice, and was voted to an emeritus chairmanship shortly before his death on September 29, 1953. Mr. Pelikan worked continuously for higher standards of pharmaceutical education and practice, and for the improvement of state laws concerning the profession for more than twenty-five years.—Ten fellowships offered through the Graduate College will be awarded to qualified scholars who contemplate academic or research careers in the medical and allied sciences. Those presenting bachelor's or master's degrees are eligible for stipends of \$1,200 to \$1,500 per calendar year with exemption from tuition fees. Evidence of scholarship and promise of research ability are primary considerations. For forms and further information address, Associate Dean of the Graduate College, University of Illinois Professional Colleges, 808 Southwood Street, Chicago 12, Illinois.

**State University of Iowa.**—Dean L. C. Zopf was elected to honorary memberships in the Iowa Dermatological Society in September.—Dean Zopf and several members of the teaching staff attended district meetings of the Iowa Pharmaceutical Association and the Iowa Interprofessional Association during the fall. Dean and Mrs. Zopf entertained the foreign students of the College in their home on the evening of September 26.—Mrs. J. W. Jones entertained Mrs. Robert Coghill, national president of Kappa Epsilon Sorority, local chapter members, alumnae, and the freshman pharmacy women at a dinner in her home

on November 14. Mrs. Coghill, a 1939 alumna, was on a tour of visitation to all Kappa Epsilon chapters.—The second annual Pharmacy Seminar, sponsored by the college, was held on October 28 and 29. The program in part covered the legal responsibilities of the pharmacist, but in the main, was a strictly scientific program dealing with those drug and drug actions of greatest interest to the practitioner. At a dinner for the Seminar attendants, the guest speaker was Dr. Fred W. Schueler, associate professor in the department of pharmacology of the college of medicine, related some of his observations and experiences in Italy during his period of study at the Higher Institute of Health in Rome. The Seminar ladies were entertained by the faculty wives at a tea at the home of Mrs. Zopf and a trip through the recently opened Hospital School for Severely Handicapped Children.—Prof. H. P. Baumann and Gail A. Wiese held career conferences in several Iowa high schools during November.

**University of Kansas.**—Mrs. Edith Cross Hall of Salina, Kansas, has established two scholarships of \$250 each to be known as the George Guy Hall Memorial Scholarships. The first recipients of these scholarships are Kenneth R. Schofield, a freshman, and Owen Loomis, a sophomore.—Ivan Watkins, a senior, is the current holder of an American Foundation for Pharmaceutical Education scholarship.—Philip Rosenberg and Gilbert Koff completed the requirements for the master's degree in pharmacology during the fall semester and are now continuing graduate studies at the Jefferson Medical College in Philadelphia.—The class in cosmetic formulation visited the Colgate-Palmolive-Peet plant recently in Kansas City.—Dr. D. G. Wenzel recently addressed one of the church groups in Lawrence on the subject of narcotics and the Kiwanis Club of Paola, Kansas on the effects of alcohol.—Dr. J. H. Burekhalter presented a paper before the medicinal chemistry section at the fall meeting of the American Chemical Society in New York.—Faculty members participated in a recent Town Hall meeting of the Kansas Pharmaceutical Association.—Dr. R. E. Hopponen is teaching a class in first aid for the Douglas County Chapter of the American Red Cross.

**University of Kansas City.**—The eleventh Annual Fall Pharmacy Seminar was held on November 11. For the first time, this year the program was expanded to include a morning session and a special program for the ladies in attendance. About 150 people attended the morning session, and 200 the afternoon.—A \$5,600 grant has been made to the school by the Pratt Quality Food Farm for research on dietary supplements. Dr. John Baumgardt is research associate in charge of the project.—The school has acquired a large amount of new equipment including an electrocardiograph for the department of pharmacology.—The interior of the pharmacy building has been completely redecorated. The Ladies Auxiliary of the Greater Kansas City Druggists' Association undertook as their special part of the project the decoration of the dean's office.

**University of Maryland.**—The total enrollment of the current year is 284 students, 34 of whom are graduate. Formerly the undergraduate student body was composed largely of Baltimoreans but now many towns in the state are represented and out of state students come from 9 states including the District of Columbia.—Grants from the American Foundation for Pharmaceutical Education and the Alumni Association are now available to nine students in the upper classes who maintain a scholastic average of "B" or above.

**Massachusetts College of Pharmacy.**—The first pharmacy internship diploma under the hospital pharmacy curriculum, was awarded at the Peter Bent Brigham Hospital in September to Louis P. Jeffrey. Prof. W. E. Hassan is pharmacist-in-chief at the hospital and is president of the Massachusetts Society of Hospital Pharmacists.—Recently, the College came into possession of the bequest of the late Cotton Center Johnson amounting to \$2,000 which will become a part of the permanent funds of the College, and will be known as the Cotton Center Johnson Fund.—John C. Barberian joined the faculty at the beginning of the current session as instructor in business administration and economics. He holds degrees in pharmacy and business administration from the University of Connecticut and a master's degree from Columbia University.—The College presented a pharmaceutical exhibit at the Diabetes Fair of the New England Diabetes Association, held in Mechanics Hall, Boston, November 16 and 17. Faculty members C. W. Bauer, M. J. Stoklosa and R. A. Gosselin were in charge of the exhibit which attracted a majority of the more than 6,000 persons who attended the Fair.

**University of Michigan.**—The thirtieth painting in the Parke, Davis series "History of Pharmacy in Pictures" was unveiled on October 27 during the Annual Pharmacy Lectures sponsored by the College of Pharmacy. The painting depicts the first pharmacy dean at the University, Dr. Albert B. Prescott. Dr. Prescott was selected as the subject for this painting because of his contributions and those of the University to pharmaceutical education. Michigan was the first institution to establish pharmaceutical instruction in a state university and the first university of any type to require a course in the basic sciences related to pharmacy. It was also the first one to eliminate apprenticeship as a requirement for graduation. Dr. Prescott is often referred to as the father of modern pharmaceutical education and the picture depicts him in the first pharmacy laboratory at the University. The building in which the laboratory was located still stands but is occupied by the department of economics. Over 200 pharmacists were present at the unveiling as was also the artist, Mr. Robert Thom, the creator of the entire series.—Dr. W. E. Connell has recently received a renewal grant for research under the Michigan Memorial-Phoenix Project. He is continuing his study of radiation sterilization of injectable materials.—"Automation in the Pharmaceutical Industry" was the title of



a paper given by Dr. A. M. Mattocks on December 7 at the mid-year meeting of the American Pharmaceutical Manufacturers Association held in New York City.—Miss Julia E. Emanuel, an 1889 graduate of the College, has provided for a \$500 scholarship to be known as the Julia E. Emanuel Scholarship for Women and to be awarded on the basis of scholarship, citizenship, and contributions to the profession. The selection of the recipient is to be made by a faculty committee. This year the award to the Misses Kathleen A. Osborn and Joan M. Rosenberg.—The Borden Scholarship Award in Pharmacy, established by the Borden Company Foundation, was presented this fall to Robert A. Wiley. The award is given to the senior who has attained the highest scholastic average in all college work preceding the senior year.—Dean Tom D. Rowe, as chairman of the Legislative Committee of the Michigan State Pharmaceutical Association, is discussing the proposed new Michigan State Pharmacy Law before county associations throughout the state.—Dr. R. A. Deno addressed the Northwestern Ohio Pharmaceutical Association in Toledo on November 30 on the subject "Drugs Used in the Treatment of Hypertension."—The junior and senior classes visited the Upjohn Company in Kalamazoo on November 21-23.

**University of Minnesota, College of Pharmacy.**—Two seniors were initiated into Phi Lambda Upsilon, honorary chemical society, on November 15.—On November 8, Paul C. Wiesman of the Norwich Pharmaceutical Company spoke to junior and senior classes on "Intricacies of Pharmaceutical Production."—Additional graduate teaching assistants are Siret H. Ener and Klaus Fiedler.—On November 16, Drs. G. F. Cortland and Walter F. Enz of the Upjohn Company spoke to faculty and graduate students on research and product development problems.—The Northwestern Branch of the APhA held an evening meeting in the auditorium of the College on November 9. Members of the branch inspected the newly redecorated building and the remodeled prescription compounding laboratory. A local pediatrician gave a lecture on "Accidental Poisoning" and light refreshments were served by the wives of the faculty.—A Chemicolloid Mill No. 1 was added to the manufacturing laboratory equipment in November.

**University of Mississippi.**—Eleven alumni visited the College on the occasion of the Mississippi State and the University's football game on November 27.

**University of Nebraska.**—Dean J. B. Burt, president of the AACP, represented the Association at the fifty-sixth annual meeting of the NARD at Houston, Texas, October 10-14, 1954. Dean Burt was the chief speaker at the dedication of the new pharmacy building of the University of Cincinnati on November 28, 1954.—Mrs. R. D. Coghill, of Lake Bluff, Ill., national president of Kappa Epsilon and Mrs. Helen Brownlee, of Minneapolis, national treasurer, visited Beta Chapter on November 16 and attended a formal pledging of new members at an evening meeting.—The College served as host to the Association of Hos-

pital Pharmacists of the Midwest for an all-day seminar on November 6. Approximately fifty were in attendance. The following speakers were on the program: Prof. Miles Barnard of the department of mechanical engineering, Introduction to Motion Study; Dr. Varro E. Tyler, Jr., the Pharmacy of Rauwolfia; Dr. Witold Saski, Some Aspects of Pharmacy in Great Britain; Dr. Frank Cole, anesthesiologist at Lincoln General Hospital, Newer Drugs in Anesthesia; and a demonstration by Dr. Frank P. Cosgrove on Tablet Manufacturing in Hospital Pharmacy.—Robert A. Hallock became a member of Rho Chi on December 6.—The Committee on Scholarship has announced the awarding of American Foundation for Pharmaceutical Education Scholarships to five students, Lincoln Drug Company Scholarships to three, and the Smith-Dorsey Division of the Wander Company Scholarships to six.—The departments of the College of Pharmacy and the Graduate College have announced a program of graduate study leading to the doctorate with a major in pharmaceutical science. Applicants for study in this area must have received a master's degree in one of the fields comprising this area and adequate prior preparation including 18 credit hours of course work selected from the four divisions of pharmacy, namely, pharmacognosy, pharmacology, pharmacy, and pharmaceutical chemistry. Qualified persons interested in pursuing graduate work toward either the master's or the doctorate are invited to apply for one of the five available graduate teaching assistantships. These pay \$1200 for the academic year, plus the remission of tuition fees except an administrative fee of \$20 per semester. Approximately 12 teaching hours a week are required of those holding these assistantships. A Research Fellowship established by the Sioux Honey Association with a stipend of \$1000 for the academic year requires no teaching duties. Applicants for these Fellowships should be addressed to the Dean of the Graduate College of the University of Nebraska. In addition American Foundation for Pharmaceutical Education Fellowships are available and applications should be addressed to the Board of Grants, 1507 M Street, N.W., Washington 5, D. C.

**University of New Mexico.**—Julien M. Tracy, a 1954 graduate of the College, who is now employed in the pharmacy of Bataan Memorial Hospital in Albuquerque, is the winner of one of the eight \$100 prizes in a national essay contest sponsored by Rho Pi Phi, international pharmaceutical fraternity. He is the winner in District No. 8 which includes the six southwestern states. Each contestant was required to write an essay on the topic "The Advisability of a National Licensing Examination in Pharmacy."—The students took an active part in the observation of National Pharmacy Week. A TV program was presented twice, over different stations, stressing "Open House at the College of Pharmacy." The show emphasized the training of the pharmacy student of today and presented facts showing that modern medication is the best bargain in the family budget. From 6 to 9 P.M. on

three days open house was held for the public. The same themes were used, augmented by displays.—Scholarship awards for the current year have been made as follows: Freshman Scholarships, to two; American Foundation for Pharmaceutical Education Scholarships, to one; and New Mexico Allied Drug Travelers, to one.—As the result of a TV program some time ago, Drs. Castle, Ferguson, and Dean Cataline were requested to present a panel discussion on the "Cost of Modern Medication" before the Women's Club of Roswell in November.—During the fall months Dean Cataline discussed the common problems of pharmacists and physicians before the joint meetings of the two professions at Hobbs, Carlsbad, and Las Vegas, New Mexico. He also attended a district meeting at Alamogordo.—Dean Cataline spent a large portion of the summer as a civilian guest of the U.S. Navy on the light cruiser USS Worcester during the NROTC Midshipman Navy Cruise. During the trip he had the opportunity to visit briefly in pharmacies in England, Ireland, and France.—Leon Moon of Sharpe and Dohme spoke on, "Aids the Representative Can Give the Pharmacist."—Dr. Hugh Ferguson was recently awarded a \$450 research grant by the University Research Committee to help him to continue his investigations of the crude drugs indigenous to the southwest.

**University of North Carolina.**—For the current school year, a total sum of \$6,850 has been awarded in undergraduate scholarships to 34 recipients on a combined basis of scholarship and need. The total was contributed by 21 different sponsors. The scholarships range in value between \$150 and \$275, averaging \$200. New graduate students in pharmacy are Dom Coviello and Cosmo DiFazio from Rutgers University. The graduate student enrollment is 16.—Dean E. A. Brecht has been elected national vice-president of Rho Chi.—An industrial inspection trip was recently made of the A. H. Robbins Company of Richmond, Virginia, by the pharmacy major graduate students.—A Memorial Fund has been established in support of the objectives of the North Carolina Pharmaceutical Research Foundation by F. Jackson Andrews of the Emerson Drug Company in the form of a permanent gift of shares; the income expected to be realized is approximately \$1,000 annually.—Drs. T. C. Grubb of the Vick Chemical Company and H. R. Kreider of the Merrell Company visited the School recently relative to fellowship research progress.—An Accreditation Committee of the ACPE inspected the School on November 8 and 9.—Dean E. A. Brecht addressed the Southeastern Society of Hospital Pharmacists meeting in Chapel Hill, recently, on the subject "Pharmacy Briefs." Included was the description and demonstration of available new equipment useful in the practice of pharmacy.—A visit by Hurricane Hazel on October 15 carried considerable anxiety but no damage to the School of Pharmacy.

**North Dakota Agricultural College.**—Iota Chapter of Kappa Epsilon was host to the Grand National President, Mrs. Marjorie Coghill and the Grand National Treasurer, Mrs. Helen Brownlee, on November 17

and 18. They were on an inspection trip to all Kappa Epsilon Chapters.—Beta Sigma Chapter of Kappa Psi announces twenty-eight new pledges during the current quarter.—The Student Branch has a paid up membership of eighty-four.—Four members of the senior class and one of the junior class were elected to Phi Kappa Phi last fall.

**Ohio State University.**—Dean B. V. Christensen, on October 15 and 16 attended the American Council on Education as a representative of the ACPE and the AACP.—Drs. E. P. Guth and Rupert Salisbury have been attending local Ohio State Pharmaceutical Association meetings throughout the state, discussing with the pharmacists the extension of the pharmaceutical curriculum.—Dr. Guth attended the State Pharmaceutical Association Council meeting at Granville on November 5.—The following received the master's degree at the close of the fall quarter: Howard J. Levin, pharmaceutical chemistry; William R. Sterling and William I. Woolley, both in pharmacology.

**University of Oklahoma.**—The senior and junior students visited the Eli Lilly Company in late November. They were accompanied by several members of the faculty.—The Oklahoma City Registered Pharmacists' Auxiliary and their husbands held a Christmas dinner in the University Union on December 8. They also invited the pharmacy students and the Norman pharmacists and their wives. Members of the pharmacy faculty acted as hosts and entertainment at the party was furnished by the students.—In a panel discussion, sponsored by the Oklahoma Public Health Council, held in Norman, November 29, Dean Ralph W. Clark represented pharmacy. The subject discussed was "The Pharmacist's Contribution to Rural Health and Wealth". This was an opportunity for pharmacy to enlighten 250 people, most of them lay leaders in the communities of the state, regarding the service of pharmacy and the low cost of medicine. Dean Clark emphasized pharmacy's desire to continue to be of service, and he stated that public opinion of what pharmacy should do would be most helpful as a guide.—American Foundation for Pharmaceutical Education Scholarships have been awarded to four pharmacy seniors.—A new idea was introduced last October for freshmen in the orientation course. A motion picture entitled "Now for Tomorrow" was made available by the Owens-Illinois Glass Company. The students were very much impressed by this picture which showed the progress in pharmacy and the interest and desire of the people who have prescriptions compounded. The showing of the picture was followed by a talk by Mr. R. L. Gilbert, a prominent Lawton retail pharmacist, in which he expressed the belief that students should have confidence in themselves and in the future of pharmacy, which he described as a good business and worthwhile profession, and then suggested that they should decide what aspect of pharmacy they desire to engage in and then concentrate their efforts in that direction. Following the address, sixty-five new students, as guests of McKesson and Robbins, were escorted in small groups through the Company's

plant and were shown how a wholesale druggist serves retail pharmacy. This program was undertaken as an experiment in orientation and the reaction of all concerned is that this innovation should become a permanent feature in the orientation program.—Leonard C. Sisk, a pharmacy senior, is one of the eighteen senior men who have been selected as Distinguished Military Student, the highest honor awarded by the Army ROTC at the University. These men are selected on the basis of outstanding scholarship, leadership, character, and aptitude for military service.—Shirley Dixon, a sophomore pharmacy student, has been elected secretary of the Newman Club, a campus organization of Roman Catholic women. She is also president of Newman Hall, dormitory for Catholic women.—Prof. V. Jean Brown has been elected president of the Norman American Association of University Women for the two-year term, 1954 and 1955.—Enrollment is up 16 per cent over last year. The chief increase is in new students and a larger senior class.—A senior student, Leonard C. Sisk has been made Battalion Commander of a freshman battalion with the rank of Lieutenant Colonel in the Army ROTC. This is a high honor for there are only three lieutenant colonels and one full colonel in the entire student organization. Two other senior pharmacy students, James Dixon and Jack Jennings have been made company commanders with the rank of captain.—Mrs. Ralph W. Clark, president of the Women's Auxiliary of the Oklahoma Pharmaceutical Association, was a guest at a "Coffee" given in Tulsa by the Registered Pharmacists' Auxiliary of that city on October 7.—Dr. Ralph Bienfang addressed the Morning Side Garden Club on October 4; the topic discussed was "Peonies".

**Oregon State College.**—Prof. Fred Grill, after 26 years in pharmaceutical education, 8 years of which were spent at this college, has resigned effective January 1, 1955, to become associated with a prescription pharmacy in Portland. At a special farewell luncheon on December 8, he was presented with a 21 jewel Bulova wrist watch as a remembrance from Oregon State alumni, students and faculty. The staff regrets losing Prof. Grill since he has been an inspiration to staff and students alike and wishes success for him in his new venture.—On December 7 and 8, Dr. Heber W. Youngken, Jr., and Dr. Walter Naumann, director of the drug plant laboratories at the University of Washington, visited the college as guests of the pharmacy staff. Dr. Youngken, Jr., presented a most stimulating and informative lecture to members of Sigma Xi on the topic "The Fact and Fancy of Drug Plants". He also spoke at a special pharmacy school convocation on "Investigations of Drug Plants".—Staff members Dr. Daniel Tsao, H. C. Forslund, Harriet Sisson and Muriel Vincent attended the November meeting of the Oregon branch of the APhA in Portland, and took part in a discussion of the proposed pharmaceutical legislation to be presented at the next meeting of the legislature.—Dr. S. McCutcheon will serve as one of the delegates to the national convention of Sigma Xi to be held in Berkeley on December 29-30. Dr. Daniel Tsao has been

appointed a member of the Kilmer Prize Committee for 1954-55.—Prof. Leo Sciuchetti has been elected president of the Corvallis Stamp Club for the current year.—“Live shots” have been taken of several pharmacy laboratories with students in action for a colored sound film depicting student life at Oregon State College. All schools on the campus will be represented in the film.

**Philadelphia College of Pharmacy and Science.**—With the opening of the fall term, a new laboratory was placed in operation, specifically designed for the conduct of pharmaceutical research. Under the direction of Drs. Linwood F. Tice and Martin Barr, Graduate students will undertake research, utilizing physical-chemical and biological concepts as they apply to pharmaceutical formulations. Typical studies to be performed involve investigations on colligative properties, solubility, rheology, surface activity, absorption, colloids, emulsions, and the preservation and stability of drugs. Practically all the construction work involved in preparing the laboratory for use was completed in the maintenance shop of the college, and by members of the maintenance staff.—One of the recent paintings of the History of Pharmacy in Pictures by artist Robert Thom, prepared for the Parke-Davis Company, is one depicting the founding of the Philadelphia College of Pharmacy and Science, at a meeting on February 23, 1821 in Carpenters' Hall in Philadelphia.—Supplementing the regular course work in pharmacology, the department is offering weekly a series of films on such subjects as immunology, anesthesia, intravenous therapy and similar topics.—Curator of the Museum, Theodor P. Haas, gave an illustrated lecture on October 6 before the Pan-American Cultural Group of the International House in Philadelphia. He described interesting plants found on his recent trip to Costa Rica and Panama.—Instructor Grafton D. Chase has completed a second course of study at the Oak Ridge Institute of Nuclear Studies. He was one of a group of fifty students studying the technics of the use of radioisotopes in biochemistry.—President Ivor Griffith attended the recent NARD meeting in Houston, Texas.—Dr. George Griffenhagen, associate director of the Division of Medicine and Public Health of the Smithsonian Institution spoke to the student assembly on November 18. His topic was “The Tools of the Apothecary”. He used a number of rare and valuable pieces from the college museum to illustrate his lecture.—Three faculty promotions have been announced as follows: Dr. J. I. Feinman to associate professor in physiology, Francis M. White to associate professor in zoology, and Robert E. Abrams to assistant professor in pharmacy. New members of the teaching staff this year are Edward S. Arnista and Leonard F. Greenberg, graduate assistants in pharmacy, and Joseph L. Ciminera, lecturer in statistics.—Dr. Arthur Osol was given the Honor Scroll by the Pennsylvania Chapter of the American Association of Chemists on December 2.—The college sent representatives to nine high school career conferences in a three-state area in a period of seven weeks.—Fifteen scholarships were awarded at the Christmas As-



sembly, December 16.—During the last week in March, the College will give the seventh series of three-day seminars for practicing pharmacists. Topics to be discussed include the newer immunizing agents, antibiotics, the cause and treatment of cardiovascular diseases, radioisotopes in medicine and pharmacy, recent important drugs, sources of technical information, the economic future of pharmacy, and a laboratory exercise in modern dispensing practices. For further details address The Registrar, Philadelphia 4, Pa.

**University of Pittsburgh.**—New instructors are John J. DeFeo in pharmacology, and Edward Hudak and Rose Goldfield in pharmacy. Dr. DeFeo received the B. S. in Pharm. from the University of Connecticut in 1951 and the M.S. and Ph.D. from Purdue in 1952 and 1954. Mr. Hudak and Miss Goldfield are both graduates in pharmacy from Pittsburgh and Miss Goldfield also has the master's in pharmacy. Both have been graduate assistants and part-time instructors in Pittsburgh since graduation.—At the annual dinner of the Allegheny County Pharmaceutical Association, Mr. Joseph F. Polchak, chairman of the board of directors, presented Dean Edward C. Reif with a plaque commending him for his outstanding contributions to pharmacy as an educator, administrator and adviser. He also announced that gifts from Association members will be used to provide a fitting tribute to the Dean in the new \$15,000,000 building for the Schools of the Health Professions now under construction.—A \$1,950 research grant from the Research Committee of Lakeside Laboratories, Milwaukee, has been received by the School. It will be used to support research under the direction of Dr. J. F. Buckley which deals with an evaluation of a series of compounds for their possible use in the treatment of hypertension.—The Research Corporation of New York City has announced a \$2,500 research grant to Dr. R. J. F. Palchak, in collaboration with Drs. Kosak, Steele and Salwitz, published "The Synthesis and Properties of the 5-Phenyl-2-and 3- Triphenols" in the September 5, issue of the *Journal of the American Chemical Society*.—Prof. William Blocksein has been appointed chairman of a recently created committee of the AACP and the American College Public Relations Association, "The Committee on Public Relations for Pharmaceutical Education".—Dr. R. W. Sager has been named as Supervising Pharmacist for the Health Center. He will be assisted by Mr. J. M. McEvilla.—George B. Hook, instructor in pharmacy administration, has been promoted to the rank of major in the U.S. Army Reserve. Major Hook is also an instructor at the Reserve Center on Saw Mill Run Boulevard.

**Purdue University.**—Early in November the senior class made an educational tour of the Eli Lilly Company plant at Indianapolis.—Two outstanding women pharmacy graduates, Miss Vivian Mehring, '49, of Carson's Drug Store in Danville, Illinois, and Dr. Josephine Murphy, '32, now a practicing physician in South Bend, Indiana, were chosen as guest speakers of the "All Women's Day" program on November 6. They discussed, with women students, the place of women in business

and professional activities. The former spoke on the subject "Women in Pharmacy", and the latter discussed "Women in Medicine".—The school held open house prior to the Homecoming football game for all returning alumni. Members of Kappa Psi and Kappa Epsilon acted as guides for those persons who wished to see changes in their alma mater since their graduation.—Dr. David A. Schlichting, '50, has been appointed senior chemist in the Pharmaceutical Development Department of the Division of Medical Sciences at McNeil Laboratories in Philadelphia.

**St. Louis College of Pharmacy and Allied Sciences.**—In place of the annual refresher course this year the College is giving a non-credit survey course in pharmacology. Dr. Arthur G. Zupko will present fifteen two-hour lectures, one evening a week, and will be assisted by Leon D. Prokop in the accompanying demonstrations. Opportunity before and after the lectures is given to individual conferences.—The total student enrollment for the current year is 319 of which 70 are veterans, 8 are from foreign countries and 13 are graduate students.—Forty-eight seniors were guests of the Upjohn Laboratories in November.—Dr. Melvin Green, Dean Tom D. Rowe, and Dr. O. J. Steppig of the Missouri State Board of Pharmacy, comprised the visitation committee which inspected the college in December.—The four officers of the Student Branch presented talks at a noonday luncheon on December 8 on the general subject, "What the APhA Is Doing for Pharmacy".—Generous gifts and pledges to the Endowment Fund have been received from the Retail Druggists Association of Greater St. Louis and from the WONARD, St. Louis Chapter No. 8. Alumni pledges made during the recent endowment drive have been very gratifying.—Associate Dean James Thayer, National Grand Counselor of Kappa Psi, recently made a visitation to the Beta Chi Chapter at Drake University.—The biology department is preparing a collection of currently used medicinal plants which are being deposited in the recently established herbarium. Dr. Frank Mercer and Frank Martin will accept, with gratitude, specimens from individual collectors. The department of pharmacology is occupying its new, fully-equipped laboratory on the third floor. Equally new and modern are the offices and private laboratories for industrial pharmacy on the ground floor.—Dean Schlichting has named Dr. Frank Mercer chairman of the Committee on Continuation Study, Associate Dean James Thayer, chairman of the Library Committee, and Dr. Walter Rist, chairman of the Committee on Publications and Publicity.

**Medical College of South Carolina, School of Pharmacy.**—James L. Renaud, B.Sc. Pharm. 1954, won the E. L. Newcomb Award in Pharmacognosy on his paper, "Notes on the Pharmacognosy of Erythrophleum". The award was made on August 20 at the meeting of the Plant Science Seminar at the University of Connecticut.—Dr. Leon Goldberg, B.Sc. Pharm., class of 1946, P. D., 1952, transferred this fall to the junior

class at Harvard University School of Medicine.—Warren Prout, son of Dean and Mrs. W. A. Prout is a freshman cadet at the Citadel, the Military College of South Carolina.

**University of South Carolina.**—Acting Dean R. W. Morrison and Dr. J. H. Junter were guests of the First and Second Districts pharmaceutical meeting held in St. Matthews, in October, at which Dean Morrison spoke to the group on the "Five Year Pharmacy Curriculum" and Dr. Hunter gave the results of "The 1953 Prescription Survey in Columbia".—At the November meeting of the Student Branch, Mr. Horace M. Kaiser of Hawthorne Pharmacy spoke on "Retail Professional Pharmacy", and said that the professional operation of a pharmacy is not only possible but is absolutely essential wherever a store is operated. Mr. Thomas Simpson spoke briefly on the proposed TV program being sponsored by the Fifth District Pharmaceutical Association.—Robert M. Bunch, a pharmacy freshman, has been elected vice-president of the freshman class of the entire University.—Dr. and Mrs. Robert P. Fischelis visited the School on November 20. They were the guests of Dr. Thomas D. Wyatt, chairman of the House of Delegates of the APhA.—Miss Mary Ann Snowden, a pharmacy sophomore, has been awarded the annual Phi Beta Kappa Scholarship for making the highest academic record in the entire University during her freshman year.—The School, in cooperation with the Fifth District Pharmaceutical Association, presented a TV program on November 30, entitled "Your Pharmacist's Training".—The University is in the midst of a \$5,000,000 building program. A Student Union Building, a building for the school of business administration, a women's dormitory, and the first six units of a new men's dormitory are now under construction. Bids were offered early in the year for six or seven more units, depending upon the funds available. The coming summer will see the end of all temporary buildings on the campus. Four have already been removed and the other three will be demolished during the summer months.

**Southern College of Pharmacy, Inc.**—Dean M. A. Chambers visited a large number of Atlanta schools during the week of November 8-12, again participating in the "College Day" program sponsored by the public schools. The program is aimed at interesting high school students in college work. He also appeared on a local TV program during national Pharmacy Week.—On October 27, the College participated in "Business Education Day" sponsored by the Atlanta Chamber of Commerce and the Fulton County Schools. Nineteen teachers visited the College and heard the staff explain the school's organization and the curriculum, after which they toured the building and were served lunch in the pharmacology laboratory and were shown a film, "The Pharmacist". The program was established to better acquaint business people and members of the teaching profession with each other's activities.—The Ladies' Auxiliary to the Fifth District Georgia Pharmaceutical Association sponsored a concert of the Emory University Glee Club at the Tower Theatre in Atlanta on November 18. The proceeds

of the concert were given to the Southern College of Pharmacy Endowment Fund.—A new course, "Isotope Pharmacy," is being offered during the current semester. It is being given by Wei-Chin Liu, who holds the doctorate from the University of Maryland, and has taken special training in "Isotope Techniques" at Purdue University. The course includes the theoretical aspects of radioactivity, the safe storage, dispensing and disposal of radioisotopes, the design of a radio-chemical pharmacy laboratory, and the pharmacist's role in this nuclear energy age. Special lectures in the course will include clinicians and radiologists from the Atlanta hospitals, Dean Chambers and G. I. Gleason, manager of the Oak Ridge Division of the Abbott Laboratories. An evening section of the course is given once a week. This session is designed for pharmacy graduates and other qualified persons interested in the subject. Nine pharmacists and doctors are registered at present in the course. During October, Dr. Liu has lectured on "Isotope Pharmacy: the Nature of and the Need for this Course" before the Atlanta Women Pharmacists' Club, and the Georgia Society of Hospital Pharmacists in Athens.—Mrs. Martha Lachert, college librarian, discussed the function of the special libraries group at the 16th biennial conference of the Special Libraries Association in Atlanta on September 30. Mrs. Lachert was elected president of the Georgia Chapter of the Association at this meeting.—For National Pharmacy Week, the pharmacy students prepared professional window displays for the College and for several downtown stores.

**Southwestern State College, Oklahoma.**—Nine pharmacy students have been awarded financial grants by the American Foundation for Pharmaceutical Education.—A faculty committee nominated seventeen students for inclusion in the 1954 edition of *Who's Who Among Students in American Colleges and Universities*.—The second annual seminar sponsored by the school was held on October 21. The theme this year was animal health. Among the featured speakers was Dr. Paul E. Hering, professor of pharmacognosy, whose topic was "The Objectives of an Animal Health Course in a School of Pharmacy." More than 100 pharmacists and farmers attended the seminar. The Weatherford Chamber of Commerce cooperated in offering the seminar.—Drs. Charles Schwartz and Earl Reynolds represented the College at a meeting of the Oklahoma Society of Hospital Pharmacists at the St. Anthony Hospital, Oklahoma City on October 15. Four pharmacy students also attended.—Drs. Reynolds and George Cunningham and two senior pharmacy students attended the Oklahoma sectional meeting of the American Chemical Society at Stillwater on October 8.—Enrollment in the three upper classes in the school is up 8 per cent. Seventy-seven students are registered in these groups.

**Temple University.**—Dr. Herbert Cobe spoke before the Philadelphia Branch of the American Academy of Medicine at the November meeting on the subject "Transitory Bacteremia," and on November 4 he represented the school at the Schuylkill County Pharmaceutical Asso-

ciation.—Dean J. B. Sprowls recently attended meetings of the Pennsylvania Pharmaceutical Association Legislative Committee in Harrisburg to discuss proposed amendments to the Pennsylvania Pharmacy Act. He is a member of this committee. On January 7, Dean Sprowls took part in a pharmacy symposium as a part of the ceremonies at the inauguration of Clifford C. Furnas as Chancellor of the University of Buffalo.—The Necomen Society recently honored Temple University as a Philadelphia institution which has made outstanding progress. President Robert L. Johnson was the guest of honor and delivered an address on the history and objectives of Temple University.—Prof. John A. Lynch, pharmacy administration, recently served as a judge in the E. R. Squibb Merchandising Display Contest.—John W. Poole, a graduate of Philadelphia College of Pharmacy and Science, has replaced Louis Ravin who has recently received a fellowship at the University of Wisconsin.—Recently appointed graduate assistants are Ugo F. Caruso from the University of Cairo, Vincent J. Rizzo from the University of Pittsburgh and Samuel Fine, Frank W. Goodhart, and Roy F. Gutshall, graduates of Temple.—The Manufacturing Pharmacy program of the School of Pharmacy, conducted in cooperation with several large pharmaceutical manufacturing firms in the Philadelphia area, is now in its second year. This two-year Master of Science graduate program includes courses in introductory manufacturing pharmacy, industrial methods and quality controls, product formulation and development, and physical pharmacy as the major subjects. The students also spend six months under an apprenticeship plan in the laboratories of one of the cooperating firms. Several of the first group of students are now returning from their industrial experience for their final semester of university work. Another group is preparing to leave the college in-service training. In addition to providing the students with six months of practical experience, the industrial companies cooperate further by supplying the lecturers and discussion leaders for the introductory manufacturing course. This subject includes such topics as the organization of pharmaceutical companies, pharmacy research and development, marketing research, organization and operation of the production division, production problems and the engineering division, pharmaceutical control including statistical quality control, packaging, labeling and storage, personnel problems in industry, and finally the position of manufacturing pharmacy in the national economy. The course objectives, outline, and content were established in conference with the manufacturing representatives, and is altered and improved by occasional meetings between the manufacturers and the pharmacy school staff.

**University of Tennessee.**—Dr. Levi Bingenhamer, class of 1941, was appointed as associate professor of pharmacy as of September 1, 1954. He received the M.S. and Ph.D. from Purdue and has been teaching since at the St. Louis College of Pharmacy and Allied Sciences.—The School of Pharmacy abandoned the accelerated program as of Septem-

ber 1, 1954. Students who entered in September will stop in June to enjoy a three months vacation, the first such occurrence since the beginning of World War II.—Seventy-five new students registered in September 1954 of which four are women.—Forty-eight students, five being women, were graduated on December 13, 1954. Dean Edward A. Brecht of the University of North Carolina gave the commencement address. His subject was "Community Responsibilities of the Health Professions." The Rev. Wayne A. Lamb of the Union Avenue Methodist Church delivered the Baccalaureate sermon on December 12, to the combined medical units. His theme was "The Royal Road to Greatness."

**University of Texas.**—Four hundred and twenty students registered in the college for the fall semester. 174 of these were new students.—Mr. Herbert F. Schwartz has been appointed as instructor in pharmaceutical chemistry to fill the place left vacant by Dr. R. F. Doerge. Mr. Schwartz has the B.S. from the University of Pittsburgh, and the M.S. from the University of Texas.—Mr. Joe Arnette has been named lecturer and director of the pharmacy extension service, replacing Mr. W. E. Woods who resigned in order to enter the practice of law in Corpus Christi. Mr. Arnette holds an A.B. from Hardin-Simmons College with a major in chemistry and a B.S. in Pharm. from the University of Texas in 1949. He has had experience as chief chemist and toxicologist with the State Health Department and with the Department of Public Safety and has had experience in retail pharmacy.—Mr. Robert G. Brown has returned to the staff as associate professor of pharmacology after a three-year absence during which time he attended the Medical School at Galveston where he is completing work for the doctorate in pharmacology.—Mr. Robert Marshall, class of 1945, who operates a professional pharmacy in Temple, Texas, spoke to the juniors and seniors in October on "How to Establish a Prescription Pharmacy."—Joe Turpin, a pharmacy senior, has been named as the "Best All-Around Boy" on the entire University campus by the Dad's Association of the University. During the same week he also was elected to Friars, an honorary organization of students making outstanding contributions to the general welfare of the University. He is also a resident of the Christian Faith and Life Community, an organization unique on the Texas campus.—Six new members have been elected by Kappa Psi. The chapter has established a prize to be given to the sophomore making the highest scholastic average during the year.—Nine new scholarships, for graduates of Texas high schools entering the college of pharmacy, have been made available by the Pharmaceutical Foundation, and one by the Coastal Bend Pharmaceutical Association for a student from that area. The Meyer and Rosser pharmacy has provided five scholarships for freshmen and one for unrestricted use by the Foundation. The Foundation has also made available two scholarships for second year students of proven ability. All of these scholarships are for \$200 each.—In cooperation with the School of Business Administration and the Division of Extension of the University, the Pharmaceutical Foun-



dation will conduct a manpower survey of pharmacists in the state.—Dr. C. C. Albers attended a meeting of the Board of Education of the United Lutheran Church in America in Washington, D. C., on December 7-8.

**Texas Southern University.**—During the NARD convention in Houston, the school was visited by Drs. P. H. Costello, R. Q. Richards, Robert L. Swain, Joseph B. Burt, Ivor Griffith and Edward C. Reif. A number of the guests took time out to visit with and address the students.—Following National Pharmacy Week, nine students, in cooperation with the University's weekly workshop, presented a half hour radio program on the pharmacist as a community leader.—Mrs. J. Dupuir, hostess to the NARD, was the guest speaker at the monthly luncheon meeting of the young ladies Spatula Club.—On December 2 and 3, the school was host to an inspection group composed of Dr. Melvin W. Green, Educational Director of the ACPE and Messrs. Howell Gordon and Leon Kahaneke of the Texas State Board of Pharmacy.

**University of Utah.**—The College of Pharmacy was host at a banquet held at the Hotel Utah on November 29, in honor of Dr. David O. McKay, President of the Church of Jesus Christ of Latter Day Saints, and Mr. Christopher E. Athas, local pharmacist and First Vice-President of the Utah Pharmaceutical Association. President McKay, honored for his democratic and spiritual ideals, has done much for education in this state and two years ago placed the many facilities of the church at the disposal of the APhA for its annual convention in Salt Lake City, celebrating the beginning of the second century of organized pharmaceutical endeavor on a nation wide basis in the United States. According to the Greek protocol, it must have been at the instance of King Paul himself that President McKay was awarded the "Cross of the Commander of the Order of Phoenix" which is the highest honor Greece bestows upon a civilian except one reserved only for the heads of state. Mr. Athas was decorated with the gold "Cross of the Order of Phoenix." He was so honored for promoting Greek relief and international good will. In the Salt Lake City area he has come to be known as the rallying point of Greek-American friendship. He has distinguished himself by the sincerity in which he has promoted his profession and by the effective way he has supported the College of Pharmacy. These honors to the recipients were presented by the Greek Consul, Mr. John Tzounis.

**Medical College of Virginia.**—The senior class toured the Lilly and the Abbott laboratories on March 1-3.—The Rho Chi Society sponsored a special lecture for the faculty and student body recently by Dr. G. W. Thoma, Jr., assistant state medical examiner who spoke on the topic "The State Medical Examiner."—The 18 MCV pharmacy graduates who took the November Virginia Board Examination, all passed.—Dr. M. L. Neuroth spoke to the James River Sertoma Club recently on the subject "Education and Professional Service of a Pharmacist."—The Student Branch entered a public exhibit contest for schools of

pharmacy in connection with National Pharmacy Week. A window, furnished by the Virginia State Chamber of Commerce, was located in a leading downtown hotel.—At the end of the first quarter, three were 27 pharmacy students on the Dean's List: 10 seniors, 2 juniors, 6 sophomores, and 9 freshmen.

**University of Washington.**—The Curriculum Committees of the University and the Washington State College held the second joint meeting at Ellensburg, which is mid-way between the two institutions. These meetings have demonstrated their value in coordinating the activities of both pharmacy programs in the state.—The College has voted to go on the five-year curricular program in 1956.—A new polarograph has been acquired by the department of pharmaceutical chemistry.—The Student Branch is conducting a raffle to procure funds for the spring trip to mid-western and eastern pharmaceutical houses.—Dean George Aagaard, new head of the School of Medicine, was entertained by the local professional pharmacists at a luncheon in December. He outlined plans for the new teaching hospital which will include two well-equipped pharmacies.—Dr. H. W. Youngken, Jr., was the December Sigma Xi lecturer on the Oregon State College campus. While there he also addressed a graduate seminar.

**Wayne University.**—Members of the junior and senior classes visited the Lilly plant in Indianapolis on October 24-26.—Mr. George Bender, editor of *Modern Pharmacy*, presented an illustrated talk on the background of the "History of Pharmacy" picture series published by the Parke, Davis and Company, at the November student convocation.—Mrs. Jane Rogan, chief pharmacist at Deaconess Hospital in Detroit, was guest speaker, describing the work of the hospital pharmacist before the Student Branch at the December meeting.—The Rho Pi Phi alumni sponsored a mixer to introduce the freshmen to the upper classmen and faculty members on November 17.—Dr. Robert P. Fischelis was the guest speaker at the November Student Convocation. He spoke of the opportunities for pharmacists in the United States Government and specifically of the role of the pharmacist in the Armed Forces.

**West Virginia University.**—An oil painting of Dean J. Lester Hayman of the College of Pharmacy was presented to him at a special dinner given in his honor by the New River Pharmaceutical Association honoring him for his long service at the University. He has been at the University since 1922 and dean of the College of Pharmacy since 1926. It was designed to show the appreciation of the Association of the work he has done for the College of Pharmacy and for his work in the practice of pharmacy throughout the state. The portrait was done by Ray Stoker of Fairmont. It was exhibited at the annual meeting of the West Virginia Pharmaceutical Association in October and is now hung in the College of Pharmacy Building on the Morgantown campus.

**University of Wisconsin.**—Two Wisconsin pharmacists were honored by the University of Wisconsin on November 4 for contributions to community and state. Citations, voted by the University Board of

Regents, were to Paul Andrew Dahl of Viroqua, and Frederick V. Bland of Madison at special ceremonies during the fifth annual Wisconsin Pharmacists Institute being held at the University. Mr. Dahl, son of one of the first graduates of the School of Pharmacy, was cited a "Pharmacist whose dedication to civil service has been instrumental in improving the health and facilities of his community; whose qualities of leadership have contributed significantly to good local and county government; whose competence and integrity have left their mark upon professional and business organizations . . .". Mr. Bland was born in England and raised in Maryland and Illinois. Since 1935 he has been employed by the Wisconsin Farm Credit Administration, Wisconsin State Board of Health, and by the Wisconsin State Board of Pharmacy. He is noted for his service to religious organizations as president of the Madison Methodist Union, lay leader of the First University Methodist Episcopal Church, subdistrict lay leader. The citation read as follows: "Pharmacist and champion of brotherhood among men, whose devotion to high standards and ethical ideals in his profession have contributed substantially to pharmacy in Wisconsin; whose religious leadership has been a stimulus to all who know him; whose firm devotion to human cooperation and understanding, without regard to creed or color, helps point the way to a world divided." The citations were awarded at the Institute's dinner before 159 officials of various pharmaceutical organizations in the state, officials of the University, and pharmacists from all parts of the state who were participating in the Institute. This is the second year pharmacists have been recognized by the University. The policy of awarding citations was initiated by the University last year to recognize pharmacists who have made notable contributions to their community and state, going beyond the normal expectation of good citizenship and competence in professional practice.—Professor Emeritus George Urdang has been named an honorary member of the Deutsche Vereinigung fuer die Geschichte der Medizin, Naturwissenschaft und Technik, and also of the new Brazilian Society of the History of Pharmacy.—The Secretariat of the International Academy of the History of Pharmacy in Rotterdam has informed the University of Wisconsin of the election to membership of Dr. Glenn Sonnedecker of the University School of Pharmacy. Membership in the Academy recognizes Dr. Sonnedecker's contributions to the historical literature and his work as assistant professor of the history of pharmacy at the University and as secretary of the American Institute for the History of Pharmacy. He has held various appointments in national pharmaceutical and historical organizations and is a former editor of the Practical Edition of the Journal of the APhA. He has the distinction of having earned the first degree (1952) granted by an American university on the basis of major work in the history of pharmacy.—The School of Pharmacy will supply pharmaceutical personnel for the pharmacy of the new Wisconsin Diagnostic Center. The plan also provides for the cooperation of the School in evaluating pharmaceutical needs and serv-

ices at state institutions under the Department of Public Welfare.—Physical properties of pharmaceutical systems will be studied by a post-doctoral fellow. Applications are invited from persons having strong backgrounds in mathematics and physical chemistry. A two-year fund of \$11,000 for the fellowship has been established by the Smith, Kline and French Laboratories.—Historical investigation of the literature concerning drugs reported to have anticarcinogenic activity will be continued for a second year under a \$6,800 grant from the National Institutes of Health. Dr. George Urdang directs the project.—New carbohydrate derivatives that may have lower toxicity, greater water-solubility and better absorption will be prepared under a grant-in-aid from Eli Lilly and Company. Dr. William O. Foye directs the project.—Two hundred Craig counter-current distributions can be carried through automatically and at one time in a new apparatus added to research equipment. Mixtures of closely related chemical species can thus be resolved.—Fifty-four graduate students are currently in residence; six of them are majoring in Pharmacy Administration. Dr. George E. Osborne, associate professor of pharmacy at the University of Utah, is in residence (1954-55) for study in the history of pharmacy and related fields. He holds a faculty fellowship from the Fund for the Advancement of Education, apparently the first of its kind awarded in the field of pharmacy by the Ford Foundation.—A Fitzpatrick homoloid mill, an Alsop eight-stage filter press, and a Colton single-punch tablet machine have been added to facilities of the manufacturing laboratory. A light-scattering photometer (American Instrument Co.) has been added to research facilities.—The short course of the Wisconsin Pharmacists' Institute was devoted to anti-hypertensive therapy, oral and injectionable modes of administration, policies of Federal and state drug law enforcement agencies, and a workshop on prescription prices and pricing.—Through the University's Extension Service, a campus short course has been extended by one-day sessions to three cities elsewhere in the state.—The *Proceedings* of the fourth Institute (1953) is available on request.—The first annual meeting of the School of Pharmacy Alumni Association, held September 26, featured Newell Stewart, president of the American Pharmaceutical Association, as the speaker.—Donald Niebuhr ('26) became the first president of the Alumni Association; Professor Dale Wurster remains acting secretary.—The University (student) Pharmaceutical Society sponsored a Christmas party for children at a tuberculosis sanatorium, presenting entertainment and gifts.—The APhA's Ebert Prize (1954) was awarded to Dr. Takeru Higuchi, thus bringing the medal to Wisconsin for the third time in the past four years.—Dr. Parks has been re-elected national secretary-treasurer of Rho Chi Society.—The second George Urdang Medal has been bestowed upon Eugene-Humbert Guitard, French historian of pharmacy, by the American Institute of the History of Pharmacy.—Pharmacy degrees granted in June were: Bachelor of Science, 84; Master of Science, 6; and Doctor of Philosophy,

7. The Ph.D degrees included the first granted here in pharmacy administration. The recipient was William S. Apple, who has joined the faculty as full time assistant professor.—Dr. Dale E. Wurster spoke recently before the Research and Medical Divisions of the Upjohn Company on "Newer Concepts of Drug Release from Pharmaceutical Solids."—In June Dr. Takeru Higuchi attended the meeting of the Midwest Analytical Section of the American Chemical Society.—Dr. Glenn Sonnedeker gave the annual Rho Chi lecture at Ohio State University, spoke before the Michigan Academy of Pharmacy, reported at the convention of the Special Libraries Association on behalf of the Joint Committee on Pharmacy College Libraries, and attended a conference of the AACPP's special committee on Public Relations.

**University of Wyoming.**—Dean David W. O'Day summarized the actions taken at the annual meetings in Boston before a meeting of the Southeastern Wyoming Pharmacal Association in Cheyenne.—Dean O'Day, with the assistance of Mrs. O'Day and Prof. Raymond J. Kahl, participated in a Wyoming University broadcast as a part of the program for National Pharmacy Week. Dean O'Day was also a guest speaker at a dinner meeting of District No. 12 of the Wyoming State Nurses Association held in Laramie. The Dean has been named as a member of the Program Committee of the local chapter of Sigma Xi for the current year.—Dr. George D. Humphrey, president of the University, has been named chairman of the 1954 General Awards Jury for Freedom Foundation of Valley Forge, Pennsylvania. He will head a thirty-member jury composed of state supreme court jurists and national executive officers of patriotic organizations, veterans organizations and service clubs.—Dr. Rollin H. Denniston has received a research grant from the National Institute of Health at Bethesda, Maryland, to cover the expenses for three years for a study on the relation of hormonal factors to animal behavior.—The Board of Trustees has granted Prof. Henry Huisinga, instructor in physiology, leave for the current year to take advanced work toward the doctorate.—The College has acquired an Electronic Electrex Power Unit for a new type of recording to be used in laboratory work in pharmacology.

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**Mr. George Bugbee**, president of Health Information Foundation, has been chosen to receive the American Hospital Association's 1954 "Award of Merit". Mr. Bugbee was executive director of the American Hospital Association from 1943 until May 1, 1954 when he assumed the presidency of HIF, succeeding the late Admiral W. H. P. Blandy. During the eleven years in the service of the AHA the Association expanded rapidly in importance in the health field and its membership from approximately 3,200 hospitals to 5,200, representing 90 per cent of the nation's hospital beds. The Award of Merit was presented to Mr. Bugbee on September 16, at the closing banquet of the Association's fifty-sixth annual convention which was held in Chicago September 13-16.

## Miscellaneous Items of Interest

### MEMORIALS

#### LEROY DELOS EDWARDS

Leroy Delos Edwards died suddenly and unexpectedly Friday, 29 October 1954 from a coronary occlusion that occurred while he was walking across the campus to attend the final oral examination of a graduate student who had completed his doctorate work under his direction. He was born in Lancaster, Wisconsin on 12 May 1897, and was the first of seven children of Charles Delos and Luella Bidwell Edwards. Funeral services were held in the Rogers-Myers Funeral Home on 1 November in the afternoon, and he was buried in Grandview Cemetery, West Lafayette, Indiana.

#### Education and Career

Professor Edwards received his grade and high school education in Lancaster, and entered the University of Wisconsin in 1917. His college education was interrupted by World War I when he enlisted in the U. S. Navy on 9 January 1918. After completing work at the Naval Training Station at Great Lakes, Illinois and at Dunwoody Institute, Minneapolis, Minnesota, he was admitted to the Navy Radio School at the U. S. Submarine Base, New London, Connecticut. He later served in the submarine service on the USS Chicago and the USS 06 as a radio operator until 1 August 1919, when he was discharged. After the war he again entered the University of Wisconsin and was awarded the B.S. in Pharmacy degree in 1923. As a student he achieved the unusual distinction of election to both Phi Beta Kappa and Phi Kappa Phi in his junior year. After over a year of experience in retail practice he became an instructor in pharmacognosy and botany at the Indianapolis College of Pharmacy 1924-1928, and at Western Reserve University 1928-1933, receiving the A.M. degree at the latter institution in 1931. He was appointed Teaching Fellow in Pharmacology at Western Reserve Medical School in 1934 to 1936 and received the Ph.D. degree in 1936. After completing his graduate work he was appointed Assistant Professor (1936-1939) and Professor (1939) of Pharmacognosy and Pharmacology in the Schools of Pharmacy and Dentistry, Western Reserve University and in the School of Pharmacy at the University of Florida (1940-1945), and in 1945 Professor of Pharmacology in Purdue University School of Pharmacy, the position which he held until his death. In addition to Phi Beta Kappa and Phi Kappa Phi, he was a



member of Sigma Xi and Rho Chi honorary fraternities, Kappa Psi and Phi Lambda Upsilon, professional fraternities, and Theta Chi, social fraternity. He was a member of the American Pharmaceutical Association, the American Association for the Advancement of Science, the Indiana Pharmaceutical Association, and the Indiana Academy of Science. He was active in the work of the American Association of Colleges of Pharmacy. He belonged to Rotary International, the Elks, and the American Legion. He was a member of the Presbyterian Church. He served on numerous committees in these organizations.

#### **Marriage and Family**

Professor Edwards was married to Hildegard Alt of Lancaster, Wisconsin on 1 January 1925. They had one child, Edith Lou, who graduated from Purdue University School of Home Economics in June 1952. Edith was married to Luke Short in 1952 and now resides in Lafayette, Indiana. The family residence has been at 608 Allen Street, West Lafayette, Indiana since 1945.

#### **Professor Edwards as a Teacher**

Professor Edwards was an excellent teacher. His thorough knowledge of his subject, careful organization of material, easy articulation, quick humor, friendly attitude, and sense of proportion made it possible for him to present difficult and complex subject matter to both undergraduate and graduate students in an interesting and understandable manner. The students liked him and rated him as one of their best instructors, although he held to high standards in quality and quantity of performance from them. Students always seemed to feel at ease in his classes and in his individual relations with them. He was greatly interested in his students and often went out of his way to help them. A single example of his success is indicated by the fact that in the space of nine years at Purdue, twenty-six graduate students completed the work for the doctorate degree under his supervision. Twenty-one of these former students now head divisions of instruction in pharmacology in schools of pharmacy in the United States.

#### **Professor Edwards as a Scientist and Associate**

Professor Edwards was a recognized authority in his field. As a member of the United States Pharmacopoeial Revision Committee he was one of sixty medical and pharmaceutical experts elected to establish and revise the legal standards for drugs in this country. In 1953 he was elected by his colleagues in science as Chairman of the Scientific Section of the American Pharmaceutical Association. He had a compelling interest in research and often his evening meal grew cold while he worked with his graduate students in the laboratory. Over

forty papers published in the scientific journals attest to his productivity. The subject matter of his researches covers a wide range, including toxicological studies, screening compounds for physiological effect, mechanism of action of drugs, and technics for measuring the effects of drugs. Outstanding are his contributions to the bioassay of drugs, his work on drugs against high blood pressure, the technic of measuring irritant action, and the mechanism of action of analgesic drugs.

Leroy D. Edwards was a man who enjoyed life, home and friends. He was of excellent character, temperate habits, and was always cordial, helpful, and thoughtful of others. He loved sports events and might have attained some success as an athlete had he not broken his leg in freshman college football practice. He kept himself well informed not only in his specialty of pharmacology but also concerning social, political, and business affairs. Those of us who were privileged to be associated with him for many years shall always feel indebted to him for his wholesome companionship, able assistance, and wise counsel.

The Committee: T. S. Miya, J. E. Christian,  
G. L. Jenkins, Chairman

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### JOHN HERMAN WURDACK

John Herman Wurdack, teacher, pharmacist, good citizen, died at Mercy Hospital in Pittsburgh, Pennsylvania, on December 8, 1954.

Dr. Wurdack became ill and entered the Mercy Hospital on Thursday, December 2. Death was attributed to a heart ailment.

Dr. Wurdack, professor of chemistry and head of the department, had been associated with the University of Pittsburgh School of Pharmacy since earning his doctor's degree there in 1910.

He was born September 10, 1888 in Pittsburgh, Pennsylvania, and received his elementary education there. Following two years of study near Kiel, Germany, Dr. Wurdack completed his high school education in Pittsburgh. He received the Ph.G. degree from the Pittsburgh College of Pharmacy in 1909, and the Pharm.D. in 1910. Upon graduation, he was appointed an instructor in chemistry at the school of medicine at Pitt. One year later, he began his life-long association with the School of Pharmacy. He progressed through the academic ranks, and in 1925, was appointed professor of chemistry at his Alma Mater.

Dr. Wurdack was an educator with a wide scope of activities and interests. His hobbies were collecting minerals, and alloys, photography, botanizing (as long as he was able), and gardening. His teaching was tinged with a human feeling and warmth possessed by few and envied by many.

In his professional life, Dr. Wurdack authored many publications and articles, ranging from books on Latin and Chemistry, through articles on window display, and plant coloring principles. His life was a

continual search for knowledge, so that he would be better qualified to teach its truth.

He served as a private during World War I in the Engineer Corps, and during World War II, served the Civilian Defense Corps as Senior War Gas Officer and Air Raid Warden.

In 1919, he married Miss Mary McMahon, a former student in his classes. He is survived by his widow, and four children, Paul J., an instructor in pharmacy at Pitt, Dr. John J., botanist at the New York Botanical Gardens, Mrs. W. G. Moore of Pittsburgh, and Mrs. John Darr of Baltimore; and four grandchildren.

Dr. Wurdack was associated with the revision of NF IV, NF VI, USP IX, and served many years as a proof reader for various revisions of the USP. From 1914 through 1927, he was an abstractor for the Yearbooks of the American Pharmaceutical Association.

Dr. Wurdack was a member of the American Chemical Society and its Pittsburgh Section since 1918, a life member of the American Pharmaceutical Association, and a former president of its Pittsburgh Branch, a life member of the Pennsylvania Pharmaceutical Association, an associate member of the Allegheny County Pharmaceutical Association, member of the American Association for the Advancement of Science, Phi Delta Chi Fraternity, Rho Chi Society, University of Pittsburgh Senate, treasurer of the University of Pittsburgh Pharmacy Alumni Unit and treasurer of Phi Delta Chi Alumni.

His circle of friends, and admirers expanded every year of his life. Every class of graduates of the school of pharmacy from 1910 held a high place in their hearts for John H. Wurdack. He stood for all that is fine and good in scholarship, citizenship and gentleness.

Dr. Wurdack was interred in St. George's Cemetery, following the offering of a solemn requiem high mass at St. Canice's Catholic Church in Knoxville, on Monday, December 13.

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### J. CARLETON WOLF

The faculty of the school of pharmacy of the University of Maryland noted with regret the passing of Dr. J. Carleton Wolf, professor of dispensing, on October 1, 1954. Several years ago Dr. Wolf suffered a serious accident when alighting from a street car, which greatly reduced his activity, as the injury to his hip was considered inoperable. However, his death was due to a heart attack.

Dr. Wolf, the son of the late Charles A. and Lillian K. Wolf, was born August 23, 1883, and represented the last of that generation in pharmaceutical circles. His father and an uncle—Michael F. Wolf, opened in 1878 and operated two outstanding apothecaries to the medical profession, one at Broadway and Bank Streets and the other at Chester and Eastern Avenues, Baltimore. Upon graduation from the

University of Maryland, Dr. Wolf became associated with the first mentioned pharmacy and upon the death of his father in 1929 assumed control of the business, which he discontinued in April 1954.

Dr. Wolf graduated from the Deichmann College Preparatory School and received the Doctor of Pharmacy degree from the University of Maryland in 1905. He received the Doctor of Science degree (honorary) from the Maryland Academy of Sciences in 1922.

He was an active member in many associations—the Maryland Pharmaceutical Association, the American Pharmaceutical Association, British Astronomical Association, Mineralogical Society of America, Societie-Astronimique de France, member of the board of trustees and director of the Astronomical Observatory of the Maryland Academy of Sciences in Baltimore, Fellow of the American Association for the Advancement of Science, member of the American Philatelic Society, member of the Phi Delta Chi fraternity, and a charter member of the Omicron Chapter of the Rho Chi Society.

Dr. Wolf was recognized as an authority in his pharmaceutical specialty. He was appointed demonstrator in dispensing in the school of pharmacy the year following his graduation, then associate professor of dispensing and commercial pharmacy in 1912 and professor of dispensing in 1915.

Dr. Wolf was a scholar and enthusiastically supported pharmaceutical education. He was also a successful business man of pleasing personality and was kindly disposed to all with whom he came in contact. He evidenced an unfailing interest in his chosen profession. He was a loyal member of the faculty of the school of pharmacy for almost fifty years, and his advice was always for the betterment of the school. In connection with the late Dr. Henry P. Hynson, he presented papers and demonstrations dealing with many pharmaceutical subjects at conventions and other schools of pharmacy. He was held in high regard by the young pharmacists and was ever ready to assist them in overcoming incompatibilities—whether therapeutic, chemical or pharmaceutical—in prescription work. His interest in former students was a continuing source of pleasure to Dr. Wolf and an aid in efficiency to the graduate. For several years he edited a section in the *Maryland Pharmacist* answering questions presenting prescription difficulties sent to him through the office of that journal.

He was also recognized as one well versed in astronomy. He pursued the study of the heavenly bodies and for many years was director of the Astronomical Observatory of the Maryland Academy of Sciences. It was by his enthusiasm and energy the trustees were convinced that an expenditure of \$10,000 should be made in procuring a powerful refracting telescope for the Maryland Academy of Sciences. His foresight was justified for during the next fifteen years the Maryland Academy of Sciences was brought to the attention of the thousands who came every week to view the heavens. Neither Dr. Wolf

nor any of his trained assistants ever received remuneration for this volunteer work.

Dr. Wolf led many parties from the Maryland Academy of Sciences to view solar eclipses, notably among them, one in January 1925 to New Haven, Connecticut and one in August 1932 in North Conway, New Hampshire. Many of the observations were published in *Popular Astronomy* and *The Annual Report of the American Association of Variable Star Observers*. He edited an article as director of the observatory in the July 1930 number of *The Maryland Academy of Sciences*, giving an account of the equipment of the Astronomical Observatory of the Maryland Academy of Sciences, with two photographs showing the telescope inside of the observatory and the revolving hemispherical dome. He brought to bear upon his astronomical investigations the same precision and refined technique that made him distinguished in the pharmaceutical profession.

Dr. Wolf's father was a director of the German American Bank which was founded in 1870, and when this bank was consolidated with the Broadway Office of the Equitable Trust, he was continued as a director. Upon the death of his father, Dr. J. Carlton Wolf became a member of the advisory board of the Broadway Office of the Equitable Trust, which office he held at the time of his death.

The memorial service for Dr. J. Carlton Wolf was held at the William Cook Funeral Mansion, St. Paul Street, Baltimore, Maryland, on October 4, 1954, 1 P.M., the Rev. J. Moulton Thomas of Christ Episcopal Church officiating, with interment in Woodlawn Cemetery.

B. Olive Cole

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#### BERNARD ALOYSIUS BIALK 1893-1954

Bernard A. Bialk was born September 27, 1893, in Detroit, Michigan. He received his elementary education in that city. He attended the Detroit College of Pharmacy in 1915 and 1916 receiving the Graduate Pharmacist Degree. He received the Bachelor of Science Degree from the Detroit Institute of Technology in 1933.

His professional career began in 1906 with employment in the Charles F. Mann Drug Co. of Detroit in which he became a partner in 1919. He became sole owner in 1929 and operated the company until 1947. He served as an instructor in advanced dispensing pharmacy at the Detroit Institute of Technology from 1936 to 1947. Due to the illness of his wife, Mrs. Emma Bialk, he came to Tucson, Arizona, in 1947. At that time, he became a member of the first pharmacy faculty of the University of Arizona and served as Associate Professor of Pharmacy until his death. At the University of Arizona, he was a member of the Faculty Senate and the Committee on Dishonest Scho-

lastic Work. He organized the Student Branch of the American Pharmaceutical Association in 1948 and served as its faculty adviser until his death. He was a charter member and faculty adviser of Delta Sigma Phi Fraternity during the same years. He was a member of the Alumni Inter-Fraternity Council and, as Chairman of its Scholarship Committee, did much to raise the scholarship of the fraternities during the last two years. He was active in the work of the Eighth District organization of the National Association of Boards of Pharmacy and American Association of Colleges of Pharmacy. He served as its secretary in 1949-50.

Professor Bialk was a member of many scientific and professional organizations and service clubs, national, state and local, and was always enthusiastic in promoting their activities and objectives.

During the depression years, Professor Bialk served on the Detroit Committee organized to supply medical care to indigents. He served continuously during World War II as adviser to the U. S. Selective Service Committee of Lansing, Michigan, representing the Retail Drug-gists of Wayne County. In Tucson he was a member of the Sunshine Kiwanis Club serving as its president in 1952 following his chairmanship of the Education and Fellowship Committee in 1951. He was a delegate to the Southwest Kiwanis Convention and to the Kiwanis International Convention in 1951-52.

Professor Bialk was an outstanding practitioner and teacher in Pharmacy, beloved by all who knew him. He was always devoted to his family and his church. He gave unselfishly of his time to his students, helping them in their professional and social relations.

The Faculty Committee: Elwin G. Wood, Albert L. Picchioni, Willis R. Brewer

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### EDMUND NORRIS GATHERCOAL 1874-1954

In a lifetime of eighty years, Edmund Norris Gathercoal, Professor of Pharmacognosy, Emeritus of the University of Illinois, College of Pharmacy, demonstrated many capacities. Pharmacist, teacher, researcher, author, administrator and family man, he gave to each the best of himself. With his death at his home in Pentwater, Michigan, on December 27, 1954, just four days after reaching his eightieth birthday, his life came to an end, but the influences of his teaching and counseling will continue to influence those with whom he came in contact.

Born of English parentage at Sycamore, Illinois, on December 23, 1874, he graduated with special honors in Botany and Pharmacognosy from the Chicago College of Pharmacy, in 1895. Practicing retail pharmacy as a clerk and later as the owner of a store, his love for teaching caused him to return to his alma mater in the fall of 1907, which by



this time had become the School of Pharmacy of the University of Illinois. During the succeeding thirty-four years, he was successively Instructor, Assistant Professor and Professor of Pharmacognosy, September, 1941.

With more than ten years of his life devoted to retail practice of pharmacy, he continued his interest in this field even after becoming a teacher. At all times he lent his support to any movement for the advance of the profession. It was as a teacher that he exerted an influence for good workmanship habits on the greatest number of persons. His students remember him for his excellent presentations, his quiet humor and the fairness of his evaluation at examination times. Such influences are not easy of measurement but have entered into the sum total of the development of the many students with whom he came in contact.

Primarily a researcher in the field of vegetable drugs, a review of his studies indicates both original investigative work and painstaking classification efforts. His interest in standardization of plant names and in color terms made him a member of national groups in these two fields. As a compliment to his administrative talents as well as his scientific background, he was chosen Chairman of the Revision Committee for the National Formulary, in 1929, a position which he held until 1939. His long apprenticeship as an association officer in various capacities had demonstrated his willingness to work and the care with which he discharged the duties of these stewardships made him an ideal leader. Attacking the problems of revising the National Formulary, he originated and put into operation a number of new and important advances. Chief of these were the establishment of scientific criteria for admission of items to the book, the plan of a rotating membership of the committee of revision, and the institution of laboratory facilities for carrying on research on problems of pharmaceutical nature in connection with the revision of the National Formulary. Out of the later has grown the Laboratory at the Washington, D.C., headquarters of the American Pharmaceutical Association as well as the journal, "Drug Standards" which he originally edited as "The Bulletin of the National Formulary Committee." Upon relinquishing the duties as chairman, in 1939, he was honored by an appointment as Chairman Emeritus, continuing to give his thoughts and efforts to this field of pharmaceutical activity.

He was author or coauthor of fourteen books and fifty-six published articles as well as numerous reports, reviews and abstracts. The careful workmanship of his research is also shown in his writings where clarity and conciseness were his watchwords. The textbook, "Pharmacognosy," which he coauthored with E. H. Wirth, and "The National Formulary, Sixth Edition" both are outstanding examples of his writing abilities.

A recital of the honors which came to him as the result of his demonstrated abilities, would include: the Ebert Prize, in 1915; the Joseph P. Remington Honor Medal, in 1936; Honorary Degree of Master in Pharmacy awarded by the Philadelphia College of Pharmacy and Science, in 1934; election as First Vice-President of the American Pharmaceutical Association, in 1922; and as President, in 1937.

His family life was deeply satisfying to him except for the loss of his only son in early manhood. His wife, his two daughters and a number of grandchildren survive him. The family maintained a summer home at Pentwater, on the shores of Lake Michigan, which upon his retirement, became the permanent home although, for a number of years, he and Mrs. Gathercoal traveled rather extensively.

A phase of his life not commonly known beyond the limits of his close acquaintances was his intense religious conviction. He was active through his lifetime in church work, and contributed much to the cause of better schools and civic improvement in his community.

Careful almost to the point of being meticulous, quiet, yet always outspoken when the occasion required, magnanimous by nature and discipline, honest in all things, his life exemplifies that of a true scholar and gentleman.

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**The Fourteenth Congress** of the **Japan Medical Association** will be held in Kyoto, Japan, from April 1 to 5 inclusive, in 1955. The Congress has been conducted once every four years since 1902. We have been asked to give some publicity to the 1955 meeting through the pages of the **Journal**. This year the Association will feature a "World Exhibition in Medical Science," the objective being to give scientific exhibition in order to learn the current status of world medicine and the humanistic spirit of foreign countries. Pharmacy is to be included in the exhibit and we are asked to furnish pictures of pharmaceutical subjects including educational institutions, laboratory processes, industrial activities, dispensaries, or anything germane to pharmacy that will show the pharmaceutical activities in our country. The Exhibition announcement says: "A glance at your photographs would help our colleagues to get a better appreciation of your medicine, and, at the same time intensify the profound feeling of respect and friendship for your country as well as for your medicine. Furthermore, the physicians, surgeons and laboratory workers in Japan will inevitably make more intensive efforts to do their best for the peace and welfare of mankind under the influence of your international good will."

## Election Results

**American Pharmaceutical Association** (elected by mail vote).

**President-Elect, John B. Heinz**, Salt Lake City, Utah; practicing pharmacist.

**First Vice President-Elect, Troy C. Daniels**; Dean College of Pharmacy, University of California, The Medical Center, San Francisco, California.

**Second Vice President-Elect, George C. Roberts**, Greenwood, Mississippi; practicing pharmacist.

**Members-Elect of the Council** for a term of three years: **H.A.B. Dunning**, Baltimore, Maryland; manufacturing and practicing pharmacist.

**Louis J. Fischl**, Oakland, California; practicing pharmacist.

**Henry H. Gregg**, Minneapolis, Minnesota; practicing pharmacist.

These officers will be installed at the annual convention in Miami Beach, Florida, the week of May 1, 1955.

The present officers of the APha who will serve through the Miami Beach convention are:

**President, Newell Stewart**, New York City, New York.

**First Vice President, John B. Heinz**, Salt Lake City, Utah.

**Second Vice President, Ronald V. Robertson**, Spokane, Washington.

The Honorary President, the Secretary and the Treasurer are elected by the House of Delegates.

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**American Society of Hospital Pharmacists** (elected by mail vote).

**President-Elect, Claude Busick**, Stockton, California.

**Vice President-Elect, Milton Skolaut**, Bethesda, Maryland.

**Treasurer-Elect, Sister Mary Rebecca**, Ogden, Utah.

The Secretary of the Society is nominated by the Executive Committee and elected annually by the ASHP House of Delegates.

The above officers will be installed at the annual meeting in Miami Beach, Florida, in May.

The membership also voted to amend the Society's Constitution and By-Laws providing for a three year term of office for the secretary and the treasurer.

The present officers of the ASHP who will continue to function until the annual meeting in May, are:

**President, George F. Archambault**, Washington, D. C.

**Vice President, Claude Busick**, Stockton, California.

**Secretary, Gloria Niemeyer**, Washington, D. C.

**Treasurer, Sister Mary Bernice**, St. Louis, Missouri.

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**The Medical Library Association.** The following officers were elected at the fifty-third annual meeting in June, 1954, in Washington, D. C.

**President, Miss Wilma Troxel**, Quine Library of Medical Sciences, University of Illinois Medical School, Chicago.

**Vice President** (President-Elect), **Wesley Draper**, Librarian, Medical Society of the County of Kings and Academy of Medicine of Brooklyn.

**Hon. Vice President, Dr. E. H. Cushing**, Washington, D. C.

**Secretary, Miss Esther Judkins**, Rockefeller Institute for Medical Research, New York.

**Treasurer, Miss Pauline Duffield**, Librarian, State Medical Association of Texas, Austin.

To the **Board of Directors: Miss Clara S. Manson**, Stanford University Medical School, San Francisco; **Robert T. Lentz**, Jefferson Medical College, Philadelphia.

The 1955 annual meeting will be held May 17-20 at Marquette University School of Medicine, Milwaukee, Mrs. Edith Dernehl, Librarian. One session will also be held at the Medical School of the University of Wisconsin in Madison.

### **Enforcement of the Federal Pure Food and Drug Laws Being Studied**

Mrs. Oveta Culp Hobby, Secretary of the Department of Health, Education, and Welfare, on January 17 announced the appointment of a committee of fourteen distinguished citizens to evaluate the adequacy of the enforcement of the Federal pure food and drug laws. The purpose of the study, Secretary Hobby said, is to "make recommendations as to the amount and kind of enforcement of the Federal Food, Drug, and Cosmetic Act, and related statutes which will best serve the interests of the country. Great expansion of the food, drug, and cosmetic industries and scientific and technological changes in the methods of processing these commodities have brought with them important changes in the enforcement responsibilities of the Food and Drug Administration. The extent to which our present enforcement program is effective in protecting the consumer, and the amount and kind of enforcement that is necessary to give the maximum amount of protection need to be reexamined. That is the fundamental purpose to which this committee will devote its study."

The committee members were selected for their interest in civic affairs and broad knowledge of consumer and industry problems. The membership of the committee includes Mr. Robert A. Hardt, a graduate of the College of Pharmacy of the University of Nebraska, and Vice-President of Hoffman-LaRoche, Inc., of Nutley, New Jersey, and Dr. Charles F. Poe, Professor of Food and Drug Chemistry and Public Health, and Dean of the College of Pharmacy of the University of Colorado. The committee held its first meeting in Washington, D.C., on February 3, 1955. Funds for this study, amounting to \$21,000 were set aside from a special appropriation made by the 83rd Congress shortly before its adjournment.

## New Books

**History of Indian Pharmacy** by G. P. Srivastava, M. Pharm., Lecturer in Pharmacy, Department of Pharmaceutics, Banaras Hindu University, with a foreword from Dr. George Urdang, Sc. D., Director American Institute of the History of Pharmacy. Volume 1, Second Edition 1954. 276 pages with seven illustrations. Calcutta 20, 7 Lower Rawdon Street, Pindars Limited. Price Rs. 12/8/-/\$2.50

A delightfully written book giving the story of the development of pharmacy in India, out of mythology to the mediaeval period and a concluding chapter throwing some light on India's pharmaceutical contribution to other countries, with special reference to its influence on Greek and Arabian pharmacy. Following each chapter is given a list of references in addition to a bibliography at the book's end. A page of corrections is included to correct unavoidable printing errors. Members of the American Institute of the History of Pharmacy have been presented a copy of the book which has been made possible, to quote Dr. Urdang, "by the generosity of Prof. M. L. Schroff, the leader and organizer of modern Indian pharmacy, and his friends."—R.A.L.

**American Druggist Blue Book**, published by the American Druggist, 250 West 55th St., New York 19, N. Y. 1954-55. 630 pages. Price \$7.00

The book lists a total of 166,590 products and gives 60,878 price changes. Special symbols are used to designate prescription products, narcotic preparations, exempt preparations, and minimum fair trade prices. It also includes these special features: Prescription Refresher Course; Merchandising Manual; Store Equipment Department; Animal-Poultry Health Guide; and an Index of over 7,200 manufacturers. The book is published in a special easy to read type. It is intended, primarily, for the use of the retail pharmacist but it seems it would be very valuable to use in the class room in courses in pharmacy administration and for some of the courses in pharmacy proper.—R.A.L.

**Acta Phytotherapeutica**, by E. F. Steinmetz, Keizersgracht 714, Amsterdam — C (Netherlands). 10 issues, monthly, except August and September. Annual subscription for the U.S.A., \$5.25

This is a newly established scientific journal on botanical medicine, the first issue appeared in January 1954. A sample has been received by the Editor with a request that the new publication be noted in the Journal. The front page carries a long list of collaborators from various countries, among which are our own Dr. K. L. Kaufman, of Butler University; Dr. George M. Hocking of Alabama Polytechnic Institute; Dr. Heber W. Youngken, Jr., of the University of Washington; and Dr. Heber W. Youngken, Sr., of Massachusetts College of Pharmacy. Undoubtedly, for those interested, a sample copy may be obtained by addressing the publisher.—R.A.L.

# INSTITUTIONS HOLDING MEMBERSHIP IN THE AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY

## Massachusetts

**Massachusetts College of Pharmacy**  
(1900)  
179 Longwood Avenue  
Boston 15  
Dean Howard C. Newton  
**New England College of Pharmacy**  
(1952)  
70-72 Mount Vernon Street  
Boston 8  
Dean Constantine N. Meriano

## Michigan

**College of Pharmacy**  
**Detroit Institute of Technology** (1923)  
2020 Witherell Street  
Detroit 26  
Dean Curtis H. Waldon  
**College of Pharmacy**  
**Ferris Institute** (1938)  
Big Rapids  
Dean Ralph M. Wilson  
**College of Pharmacy**  
**University of Michigan** (1900)  
Ann Arbor  
Dean Tom D. Rowe  
**College of Pharmacy**  
**Wayne University** (1925)  
4841 Cass Avenue  
Detroit 1  
Dean Stephen Wilson

## Minnesota

**College of Pharmacy**  
**University of Minnesota** (1901)  
Minneapolis 14  
Dean Charles H. Rogers

## Mississippi

**School of Pharmacy**  
**University of Mississippi** (1913)  
University  
Dean E. L. Hammond

## Missouri

**St. Louis College of Pharmacy and**  
**Allied Sciences** (1900)  
4588 Parkview Place  
St. Louis 10  
Dean A. F. Schlichting  
**School of Pharmacy**  
**University of Kansas City** (1948)  
5100 Rockhill Road  
Kansas City 10  
Dean Leslie L. Eisenbrandt

## Montana

**School of Pharmacy**  
**Montana State University** (1917)  
Missoula  
Dean Jack E. Orr

## Nebraska

**College of Pharmacy**  
**Creighton University** (1916)  
Fourteenth and Davenport Streets  
Omaha 2  
Dean William A. Jarrett  
**College of Pharmacy**  
**University of Nebraska** (1913)  
Lincoln 8  
Dean Joseph B. Burt

## New Jersey

**College of Pharmacy**  
**Rutgers University** (1923)  
The State University of New Jersey  
1 Lincoln Avenue  
Newark 4  
Dean Roy A. Bowers

## New Mexico

**College of Pharmacy**  
**University of New Mexico** (1952)  
Albuquerque  
Dean Elmon L. Cataline

## New York

**College of Pharmacy of the**  
**City of New York**  
**Columbia University** (1939)  
113-119 West 68th Street  
New York 23  
Dean E. E. Leuallen  
**College of Pharmacy**  
**Fordham University** (1939)  
New York 58  
Dean James H. Kidder  
**Brooklyn College of Pharmacy**  
**Long Island University** (1939)  
600 Lafayette Avenue  
Brooklyn 16  
Dean Hugo H. Schaefer  
**College of Pharmacy**  
**St. John's University** (1951)  
96 Schermerhorn Street  
Brooklyn  
Dean John L. Dandrea  
**Albany College of Pharmacy** (1945)  
**Union University**  
106 New Scotland Avenue  
Albany 3  
Dean Francis J. O'Brien  
**School of Pharmacy**  
**University of Buffalo** (1939)  
Buffalo 14  
Dean Daniel H. Murray

## North Carolina

**School of Pharmacy**  
**University of North Carolina** (1917)  
Chapel Hill  
Dean E. A. Brecht

## North Dakota

**School of Pharmacy**  
**North Dakota Agricultural College** (1922)  
Fargo  
Dean W. F. Sudro

## Ohio

**College of Pharmacy**  
**University of Cincinnati** (1947)  
Cincinnati 21  
Dean J. F. Kowalewski  
**College of Pharmacy**  
**Ohio Northern University** (1925)  
Ada  
Dean Albert C. Smith  
**College of Pharmacy**  
**Ohio State University** (1900)  
Columbus 10  
Dean B. V. Christensen  
**College of Pharmacy**  
**University of Toledo** (1941)  
2801 West Bancroft Street  
Toledo 6  
Dean Charles H. Larwood



# INSTITUTIONS HOLDING MEMBERSHIP IN THE AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY

## Oklahoma

School of Pharmacy  
Southwestern State College (1961)  
Weatherford  
Dean W. D. Strother  
School of Pharmacy  
University of Oklahoma (1965)  
Norman  
Dean Ralph W. Clark

## Oregon

School of Pharmacy  
Oregon State College (1915)  
Corvallis  
Dean George E. Crossen

## Pennsylvania

School of Pharmacy  
Duquesne University (1937)  
901 Vickroy Street  
Pittsburgh 19  
Dean Hugh C. Muldoon  
Philadelphia College of Pharmacy  
and Science (1949)  
43rd St., Kingessing & Woodland Aves.  
Philadelphia 4  
Dean Ivor Griffith  
School of Pharmacy  
Temple University (1928)  
3223 North Broad Street  
Philadelphia 40  
Dean Joseph B. Sprowls  
School of Pharmacy  
University of Pittsburgh (1906)  
1431 Boulevard of the Allies  
Pittsburgh 19  
Dean Edward C. Relf

## Philippine Islands

College of Pharmacy  
University of the Philippines (1917)  
Quezon City  
Dean Patrocinio Valenquela

## Puerto Rico

College of Pharmacy  
University of Puerto Rico (1926)  
Rio Piedras  
Dean Luis Torres-Diaz

## Rhode Island

Rhode Island College of Pharmacy  
and Allied Sciences (1928)  
235 Benefit Street  
Providence  
Dean W. Henry Rivard

## South Carolina

School of Pharmacy  
Medical College of South Carolina (1946)  
16 Lucas Street  
Charleston 16  
Dean William A. Prout  
School of Pharmacy  
University of South Carolina (1928)  
Columbia 19  
(Acting) Dean Robert W. Morrison

## South Dakota

Division of Pharmacy  
South Dakota State College of  
Agriculture & Mechanical Arts (1908)  
Brookings  
Dean Floyd J. LeBlanc

## Tennessee

School of Pharmacy  
University of Tennessee (1914)  
874 Union Avenue  
Memphis 3  
Dean Karl J. Goldner

## Texas

School of Pharmacy  
Texas Southern University (1962)  
3201 Wheeler Street  
Houston 4  
Dean Hurd M. Jones  
College of Pharmacy  
University of Houston (1963)  
3801 Cullen Boulevard  
Houston 4  
Dean N. M. Ferguson  
College of Pharmacy  
University of Texas (1926)  
Austin 12  
Dean Henry M. Burlage

## Utah

College of Pharmacy  
University of Utah (1961)  
Salt Lake City 1  
Dean L. David Hiner

## Virginia

School of Pharmacy  
Medical College of Virginia (1906)  
Richmond 19  
Dean R. B. Smith, Jr.

## Washington

School of Pharmacy  
State College of Washington (1912)  
Pullman  
Dean Haakon Bang  
College of Pharmacy  
University of Washington (1903)  
Seattle 5  
Dean Forest J. Goodrich

## West Virginia

College of Pharmacy  
West Virginia University (1920)  
Morgantown  
Dean J. Lester Hayman

## Wisconsin

School of Pharmacy  
University of Wisconsin (1906)  
Madison 6  
Dean A. H. Uhl

## Wyoming

College of Pharmacy  
University of Wyoming (1961)  
Laramie  
Dean David W. O'Day

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## **FELLOWSHIP IN PHARMACY**

To meet the demonstrated need for trained teachers and researchers in the field of pharmacy, the American Foundation for Pharmaceutical Education announces a limited number of Fellowships for students seeking graduate degrees in pharmaceutical subjects.

These Fellowships are open to students (men or women) qualified for registration in approved graduate schools (or colleges) for one or more of the following major fields:

**PHARMACY**  
**PHARMACEUTICAL CHEMISTRY**  
**PHARMACOLOGY**  
**PHARMACOGNOSY**  
**PHARMACY ADMINISTRATION**  
**(or closely related subjects)**

Each Fellow will receive from the Foundation a stipend to cover the period of his appointment and, when not provided for from other sources, an allowance for academic expenses. Normally, new Fellowships are started only in September. New applications and requests for renewals of grants should be submitted between March 15 and April 15 of each year. Fellowships are renewable.

For further information concerning Foundation Fellowships, including application forms, write directly to the

**Secretary,**

**AMERICAN FOUNDATION FOR PHARMACEUTICAL  
EDUCATION**

**1507 M Street, N. W.**

**Washington 5, D. C.**

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